

**ENTERPRISE FINANCE AND ECONOMIC DEVELOPMENT:  
A STUDY OF THE FISHING INDUSTRY  
IN UGANDA AND THE GAMBIA**

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## **ABSTRACT**

Small and Medium-sized Enterprises' (SMEs) financing has attracted much attention in the past decades. However, most works on SMEs are focused on industrial and service sector firms. The importance of fish-based SMEs in the economic development cannot be over-emphasized as countries, such as; Uganda and The Gambia rely on these firms to support a significant segment of their populations. Over 700,000 and 200,000 people respectively in Uganda and The Gambia depended on fish for their livelihood in 2006. Despite its importance, fish operatives in both countries continue to face problems of lack of technology and access to finance. Hence, this study examines institutional and supply-side constraints facing fish production, and the relationship between technology and exports, and between access to finance and R&D, and exports in Uganda and The Gambia.

The thesis is organized into seven chapters. After the introduction, chapter discusses the theoretical considerations. Chapters three, four, five and six analyze comparatively four important relationships respectively, namely, importance of fishery industry, institutional and technological constraints facing the industry, problems affecting access to finance, and variables affecting operative performance. Chapter seven presents the conclusions.

The evidence shows that institutional and supply-side constraints have affected production capabilities in the two countries differently. Although capabilities in Uganda and The Gambia have not reached the technology frontier, the EU ban on fish imports into Europe triggered an institutional response that led to technological capability building to address sanitary problems facing the industry. The improved physical and knowledge infrastructure, which has enabled technological adaptation in the fish processing chain, coupled with a stable and enabling macroeconomic environment has helped propel fish exports to

sophisticated markets in the West. The lack of it has restricted fish exports from The Gambia.

In addition, the evidence shows that size and age matter in fish SMEs' ability to access finance. The lack of collateral, which is a chronic problem associated with small firms, is the primary constraint facing SMEs' inability to access finance. Uganda and The Gambia are no different from other developing countries as size is often the prime constraint that restricts financial access.

Furthermore, access to finance and R&D have a strong relationship with export performance and value added. Operatives with greater access to finance and R&D incidences show strong export performance. These results support the general theory of financial access and R&D. Hence, it is clear that both financial and technological capabilities are important for the fish operatives to compete in global markets.

Taken together, the evidence shows that institutional support is critical to provide the systemic pillars essential to stimulate fish exports from The Gambia and Uganda, which is very much consistent with the evolutionary arguments. Governments should then strive to strengthen the systemic pillars of basic infrastructure, high tech infrastructure, global integration and network cohesion to support technological upgrading. The evidence also shows that size and age matter in access to external finance. Hence, SMEs' access to financial access problems can be reduced through special policies to underwrite the need for collateral. Furthermore, financial access and R&D are important in stimulating fish exports in both countries. Hence, even in LDCs, the Schumpeterian argument of innovation is essential to support competitiveness in export markets. The governments of Uganda and The Gambia should focus on supporting fish operatives with essential finance to undertake R&D so as to stimulate further fish exports.

## ABSTRAK

Pembiayaan perusahaan kecil dan sederhana (PKS) telah menarik banyak perhatian dalam dekad-dekad yang lampau. Namun, kebanyakan tulisan terhadap PKS menekankan firma perindustrian dan perkhidmatan. Perhatian terhadap pentingnya PKS berasaskan ikan tidak boleh lagi diperkecilkan kerana negara-negara seperti Uganda dan The Gambia bergantung pada perusahaan ini untuk menampung kehidupan sebahagian besar daripada penduduk mereka. Lebih 700,000 dan 200,000 orang di Uganda dan The Gambia bergantung pada ikan untuk menyara hidup mereka pada tahun 2006. Meskipun ianya penting, perusahaan ikan di kedua-dua negara terus menghadapi masalah kekurangan teknologi dan laluan pembiayaan. Jadi, tinjauan ini mendekati kekangan institusi dan bahagian-penawaran, dan hubungan antara teknologi dan eksport, dan antara laluan kewangan dan penyelidikan dan kemajuan (R&D), dan prestasi eksport di Uganda dan The Gambia.

Tesis ini mengandungi tujuh bab. Selain bab pengantar, bab kedua membincangkan penilaian teori. Bab ketiga, keempat, kelima dan keenam menganalisis secara perbandingan empat hubungan mustahak, iaitu, kepentingan industry, kekangan institusi yang dihadapi oleh industri, masalah yang memberi kesan kepada laluan kewangan, dan pembolehubah yang mempengaruhi prestasi perusahaan. Bab tujuh membentangkan kesimpulan.

Bukti memperlihatkan kekangan institusi dan bahagian-penawaran telah menjejaskan keupayaan pengeluaran di kedua-dua negara secara berlainan. Meskipun keupayaan di negara Uganda dan The Gambia belum lagi sampai di sempadan teknologi, larangan oleh Kesatuan Eropah terhadap ikan yang dijangkiti dengan kuman mencetuskan balasan institusi yang mempertingkatkan keupayaan teknologi demi mendekati masalah kesihatan yang dihadapi oleh industri itu. Penambahbaikan infrastruktur fizikal dan pengetahuan,

yang telah memungkinkan pengubahsuaian teknologi dalam rantai pemrosesan ikan, bersama-sama suasana makroekonomi yang stabil telah memandu eksport ikan daripada Uganda ke pasaran Barat. Ketiadaan peralihan ini telah menyekat eksport ikan daripada The Gambia.

Tambahan pula, bukti menunjukkan bahawa saiz dan umur memainkan peranan penting dalam laluan kewangan. Kekurangan kolateral, yang merupakan satu masalah kronik firma kecil, adalah kekangan asas ketidakupayaan PKS untuk memperolehi laluan kewangan. Uganda dan The Gambia bukannya kes berlainan dalam hal ini berbanding dengan negara membangun lain kerana saiz merupakan punca utama kewujudan kekangan laluan kewangan.

Selain daripada itu, laluan kewangan dan R&D menunjukkan hubungan kuat dengan prestasi eksport dan nilai ditambah. Perusahaan yang memperolehi laluan kewangan yang kukuh, dan menjalankan R&D menunjukkan prestasi eksport yang kuat. Penemuan ini menyokong teori umum terhadap laluan kewangan dan R&D. Jadi, adalah jelas bahawa kewangan dan keupayaan teknologi adalah penting bagi mendokong daya saing perusahaan ikan di pasaran global.

Pendek kata, bukti menunjukkan bahawa sokongan institusi adalah kritis untuk memberi tiang sistemik yang kukuh demi mendokong eksport ikan daripada The Gambia dan Uganda, yang merupakan seiring dengan penghujahan teori evolutionari. Pemerintah perlu berusaha untuk mengukuhkan tiang sistemik infrastruktur asas, infrastruktur teknologi tinggi, integrasi global dan penerapan jaringan demi mendorong penambahbaikan teknologi. Bukti juga menunjukkan bahawa saiz dan umur mempengaruhi laluan kewangan. Jadi, masalah laluan kewangan PKS boleh dikurangkan dengan dasar khas untuk melonggarkan kehendak kolateral. Tambahan pula, laluan kewangan dan R&D adalah

penting untuk mendorong ekspor ikan di kedua-dua negara ini. Jadi, di negara mundur (LDC) pun, penghujahan Schumpeter terhadap inovasi adalah wajib untuk mendukung daya saing di pasaran ekspor. Kerajaan Uganda dan The Gambia perlu menekankan sokongan kepada perusahaan ikan dengan kewangan asas untuk membiayai R&D demi mendorong ekspor ikan.

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## **LIST OF ABBREVIATIONS**

ACGS – Agricultural Credit Guarantee Scheme  
ADB – Agricultural Development Bank  
AfDB – African Development Bank  
AGOA – African Growth Opportunity Act  
AIT – Asymmetric Information Theory  
BADEA – Arab Bank for Economic Development in Africa  
BDS – Business Development Services  
BOI – Bank of Industry  
CBG – Central Bank of The Gambia  
CBN – Central Bank of Nigeria  
CDI – Centre for the Development of Industry  
DAG – Directed Acyclic Graph  
DFID – UK Department of International Development  
DFR – Department of Fisheries Resources  
EBAs – Everything But Arms  
EC – European Commission  
EEC – European Economic Commission  
EEZ – Exclusive Economic Zone  
ERP – Economic Recovery Program  
EU – European Union  
FAO – Food and Agricultural Organisation  
FDI – Foreign Direct Investment  
FIRRI – Fisheries Resources Research Institute  
FOGAPE – Fondo de Garantia para Pequeros Empresarios  
FTC – Firm Technological Capabilities  
GBOS – The Gambia Bureau of Statistics  
GCDB – The Gambia Commercial and Development Bank  
GCR – Global Competitive Report  
GCU – The Gambia Cooperative Union  
GDP – Gross Domestic Product  
GIEA – The Gambia Investment Export Agency

GIPFZA – The Gambia Investment Promotion and Free Zones Agency  
HACCP – Hazard Analysis and Control Critical Points  
IFAD – International Fund for Agricultural Development  
IFC – International Finance Corporation  
ISI – Import Substitution Industry  
LDCs – Least Developed Countries  
LV – Lake Victoria  
LVEMP – Lake Victoria Environment Management Project  
MCS – Monitoring, Control and Surveillance  
MFIs – Microfinance Institutions  
MNCs – Multinational Corporations  
MSMEs – Micro, Small and Medium-sized Enterprises  
MSY – Maximum Sustainable Yield  
NABARD – National Bank for Agricultural Rural Development  
NBFIs – Non-Bank Financial Institutions  
NGOs – Non-Governmental Organisations  
NPLs – Non-Performing Loans  
NRM – National Resistance Movement  
NTC – National Technological Capabilities  
OECD – Organisation of Economic Cooperation and Development  
OLS – Ordinary Least Squares  
POT – Pecking Order Theory  
PSD – Program for Sustained Development  
R&D – Research and Development  
RDI – Research and Development Incidence  
RFF – Regional Foreign Firms  
RMNCs – Regional Multinational Corporations  
SACCOs – Savings and Credit Cooperative Organisations  
SBSS – Small Business Scoring System (USA)  
SDF – The Gambia Social Development Fund  
SHGs – Self – Help Groups  
SMEs – Small and Medium-sized Enterprises  
SPS – Sanitary Phytosanitary

ROSCAs – Rotating Savings and Credit Associations  
SSA – Sub-Saharan Africa  
UBOS – Uganda Bureau of Statistics  
UFPEA – Uganda Fish Processors and Exporters Association  
UGSHS – Uganda Shillings  
UIA – Uganda Investment Authority  
UIP – Uganda Integrated Project  
UK – United Kingdom  
UM – University of Malaya  
UNBS – Uganda National Board of Standards  
UNCST – Uganda National Council of Science and Technology  
UNCTAD – United Nations Conference on Trade and Development  
UNIDO – United Nations Industrial Development Organisation  
USA – United States of America  
USAID – United States Agency for International Development  
USD – United States Dollar  
UTG – University of The Gambia  
VA – Value Added  
WBES – World Business Environment Survey  
WTO – World Trade Organisation

## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 Introduction**

Small and Medium Enterprises (SMEs) financing attracted much research following financial sector reforms in many developing countries. Due to the importance of SMEs to the socio-economic development, they remain high on the policy agenda for Sub-Saharan Africa (Berries, 1993a; King, 1996a; King & McGrath, 1999) and most developing countries development (see DFID 2000; Daniels, 1994, 1999; Grosh & Somolekac 1996; World Bank 2004; Beck et al. 2005, 2006; Biggs 1996). SMEs are an engine of growth in most economies, thereby making them a key plank of development policy.

Developing Sub-Saharan Africa (SSA) is characterised by micro, small and medium-sized enterprises (MSMEs) with few large private corporate enterprises. MSMEs constitute over 90% of total employment and over 95% of total operating enterprises (Tayinbeya, 2009). They need external finance for growth while their exposure to adverse business environment and information asymmetric often proves to be major obstacles. This has influence their volatile growth patterns overtime.

The fishing industry is crucial in the economies of Uganda and The Gambia, with the sector contributing significantly to household incomes, food security, employment and Gross Domestic Product (GDP). The importance attached to fish SMEs in the economic development cannot be over-emphasised (Robinson, 2001), in terms of their contribution to jobs, poverty reduction, tax revenues for central and local governments, among others.

The industry directly employs over 700,000 (2006) people in Uganda and directly and indirectly supports over 2 million (Hammerle et al. 2010). Fish is also the largest export commodity after overtaking coffee in 2005 while meeting fish nutrient needs of some 22 million people in East Africa (Ishengoma & Koppel, 2008). Ugandan fish exports rose from USD\$80 million in 2002 to USD\$147.2 million in 2006 before dropping to USD\$131 million in 2010 due to competition in the fish export markets of EU and USA and threats of overfished Nile perch. Over 200,000 people depend on fish industry for livelihood in The Gambia and remain a major source of animal protein, jobs, incomes, foreign exchange earnings through exports and food security.

Despite the important developmental role of fish SMEs, it is paradoxical that they continue to experience acute lack of access to formal external finance. As a result, Non-Governmental Organisations (NGOs) and other informal financial sources, such as family, friends and money lenders have emerged to fill the gap by trying to address the difficulties in financial access. However, several studies including Ledgerwood, (2000); Robinson, (2001); Rhyne & White, (2003) and Hulme & Mosley (1996, 1998) highlighted serious limitations of NGOs in addressing financial access for long-term sustainability due to high donor dependence, limited funding sources, weak management information systems and other corporate governance issues. The informal sources are also not significant enough to meet fish SMEs expansion and growth potentials.

Several studies have shown that the lack of access to formal financial credit has been identified as key obstacles to enterprise operations and growth prospects (Shiffer & Werder, 2001), also (see Cressy, 2002; Beck et al. 2006, 2008; Vos et al. 2007; Stiglitz & Weiss 1981; Berger & Udell 1998, 2002 and Martinez Paria, 2010).

Access to finance from the banking sector in SSA is extremely limited, with only a few non-farm enterprises accessing formal credit. Despite clear evidence that a number of micro, small and medium enterprises need financial support and are even able to service their loans, the formal financial system have been slow to respond (Jirongo, 2004:1). Microfinance institutions (MFIs) have also emerged to improve the financial access as their lending instruments are less stringent compared to commercial banks. These instruments include group lending, collateral substitutes and offering flexible repayment systems to increase enterprises' access to formal finance. However, their coverage is limited and often the required project funding is not met. MFIs are also associated with high lending costs that affect profit margins and sustainability of SMEs (Kasekende, 2002 and Tarinyeba, 2009).

With these limitations, Governments in most developing economies have in the past assumed a direct responsibility to extend financial credit to key sectors of the economy. They have therefore been in the forefront of promoting carefully crafted financial access in terms of direct allocation of funds to micro, small and medium-sized enterprises (SMEs) and the agricultural sector under various institutional arrangements (Jaabi, 2004). Government interventions are usually explained by the perceived imperfections in financial markets, which limit the provision of financial credit to key sectors of the economy. Consequently, efforts to provide a level playing field through policies and programs to ensure adequate transfer of funds to small farmers and fishermen who are the pivot of agricultural production in developing countries became imperative. Direct interventions in the financial markets to stimulate growth were executed in Uganda and The Gambia through a blend of targeted credit programs, interest rate caps, subsidies and other government projects (Jaabi, 2004).

The other credit delivery programs of many developing country governments, over the years, included sanctioning commercial banks to allocate a percentage of their deposits/loans to finance special sectors like agriculture, tourism, small and medium enterprises and other key sectors of the economy. In addition, a number of credit guarantee schemes were set up to enhance formal credit delivery to these sectors. In the immediate post-independence era in both Uganda and The Gambia, the desire to enhance growth and development in key sectors led to both governments to participate directly in the financial markets through credit supply-led approaches to these industries implemented by public sector financial agencies,<sup>1</sup> which led to the establishment of the Agricultural Development Bank (ADB), The Gambia Commercial and Development Bank (GCDB) and The Gambia Cooperative Union (GCU) in The Gambia and the Prosperity For All and other development projects in Uganda.

However, due to gross mismanagement, high operational costs, high non-performing loans, political intervention and other related vices which became endemic caused a clampdown for such noble missions be realised. In most cases, the targeted people are not reached due to political hijacking of such programs.

Nevertheless, there have been a number of successful policy initiatives to promote SME financial access, including government subsidised lines of credit and guarantee fund schemes, such as Chile's Fondo de Garantía para Pequeños Empresarios (FOGAPE), a public sector guarantee funds to enhance formal bank financing to SMEs. The guarantee

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<sup>1</sup> Most of these development strategies from 1950s through to 1980s were disasters due to poor repayments, cost of subsidies ballooned and much credit diverted away from target recipients, (Adams, Pischke & Graham, 1984)



fund has many incentives that made it attractive for bank lending, including enhancing competition and reducing incidence of moral hazard in the financial sector to ensure self-sustainability (Torre, 2008). Other successful programs included the Colombian Fondo Nacional de Garantías (National Guarantee Fund) which operates similar credit guarantee services to Chile's FOGAPE. The Mexican Development Financial Institution (FIRA) is another form of government effort to avail formal finances to SMEs with structured financial arrangements. The Mexican Development Bank (NAFIN) also commenced reverse factoring program to enhance financial access to SMEs through online sale of receivables from large suppliers (See Schmukle, 2007 and Torre et al. 2008).

The Agricultural Credit Guarantee Scheme (ACGS) and the SME Investment Schemes (SMEIS) implemented by the Central Bank of Nigeria (CBN) in collaboration with the Federal Government of Nigeria succeeded in guaranteeing commercial banks financing of SMEs and the agricultural sector. The Nigerian government also facilitated revolving refinance funds through the state-owned Bank of Industry (BOI) and the National Agricultural Bank for Rural Development (NABARD) (Ojo, 1999).

The Malaysian government policy of boosting SME financing by establishing SME bank in 2004<sup>2</sup> is yet another successful initiative to promote SME financing across industries (Rasiah, 2011)<sup>3</sup>. The successful execution of funds to SMEs helped change banks'

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<sup>2</sup> Total of 162 programs were implemented totaling RM3.05 billion benefiting 603,173 SMEs across all sectors in 2009, capacity building of SMEs costs RM804 million reaching 289,200 SMEs.

<sup>3</sup> Rasiah (2011) Financing Small and Medium Manufacturing Firms in Malaysia, Paper delivered at a workshop in Malaysia on January 21, 2011.

perception of risks and uncertainties associated with SME financing,<sup>4</sup> particularly in volatile economic and business environment lacking appropriate infrastructure that often make financing costly and inefficient (CBN , 2009 and Ojo, 1999).

However, public sector intervention in directing credit to key sectors has also been problematic in many developing countries. The credit schemes run by the Development Finance Department of Bank of Uganda (Kiggundu, 2006 and Kasekende, 2002) and similar programs in The Gambia (Jaabi, 2004 and Jirongo, 2004) had faced serious operational problems. The bureaucracies in processing loans, untimely disbursement and often inadequate funding marred these credit schemes. Despite the noble objectives of their establishment, the achievements of the numerous agricultural credit and rural financing programs have been disappointing. Available information shows that some of the programs are moribund while others are saddled with huge liabilities as well as limited outreach.

The concept of enterprise finance has gained recognition as a tool for raising household incomes, promoting small business growth, reducing poverty and inequalities. They may be formal financial intermediaries, semi-formal or informal institutions. Their level of formality depends on the sophistication of their organisational structure and governance, as well as, the degree of oversight by regulatory authorities. The highly informal financial service providers such as very small and simple organisations like Ususus<sup>5</sup>, NGO finance and other informal finance groups are not supervised by the government entity. At the informal end of the spectrum, there are moneylenders, Rotating Savings and Credit

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<sup>4</sup> The key constraints affecting the SMEs in most developing countries can be grouped into four categories namely: weak business environment, poor financing, low managerial capacity and lack of access to modern technology, with acute lack of finance occupying a very central position.

<sup>5</sup> Informal savings and credit groups in West Africa similar to rotating Savings and Credit Associations

Associations (ROSCAs) or Ususus in West Africa, Tontines in Central and Eastern Africa, Merry-Go-Round in Mexico and other parts of Latin America, community savings clubs, deposit collectors, credit unions, and agricultural input providers, traders, and processors. Microfinance Institutions (MFIs), private and public banks are the most formal financial organisations. The middle ground is inhabited by member-owned institutions such as the non-bank financial institutions (NBFIs), cooperative credits and non-governmental organisations (NGOs), which have operated for centuries in the developing world with varying degrees of success in enterprise financing.

Notwithstanding all the constraints facing SMEs' financial access, there are some push and pull factors in the financial markets, such as, growing competition and new entrants<sup>6</sup> coming up with innovative and profitable ways of financing enterprises. This does not only increase competition in the retail market but also leads to margin squeeze. With attempts to increase more revenue in the circumstances, many banks are forced to explore new markets including SMEs for financing.

The pull factors have led to banks to downscale and integrate this vast market with the new-found interest of increasing awareness of MSMEs' profitability (Jenkins, 2000). This is associated with the introduction of innovative models demonstrated by some MFIs<sup>7</sup> and huge success stories of banks in microfinance<sup>8</sup>. In addition, some NGOs and MFIs continue to graduate to full-fledged banks in many developing countries (K-Rep and Equity banks in Kenya and Bancosol in Bolivia), an indication that financing MSMEs is not only profitable

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<sup>6</sup> From six commercial banks in 2004, the number rose to 14 by December 2010

<sup>7</sup> Equity Bank of Uganda, Uganda Finance Trust, Reliance Financial Services in The Gambia, FINCA Uganda

<sup>8</sup> Oceanic Bank in The Gambia, Equity Bank & K-REP in Kenya, Bank Rakyat Indonesia, Bancosol in Bolivia

but also sustainable with real growth potential. Moreover, the informal economy, mainly comprising of MSMEs and employing about 80% of total labour force<sup>9</sup>, shows huge business opportunities that mainstream banks can no longer afford to ignore (Asei, 2006).

Besides, banks with their wider branch networks, huge funding capacity, technical and human resources, ability to invest in technology, research and development (R&D) and innovation, tend to have the right capabilities to reach out to the vast untapped enterprise market and reap economies of scale in a sustainable manner. With these capabilities, they are regarded as the financial institution to better bank fish SMEs in the long-run.

Fish is a perishable commodity requiring institutional and technological capability building to enhance quality and hygiene fish handling along supply chains to boost production, processing and exports to lucrative markets. Fish industry is faced with stringent technical barriers and strict sanitary standards requiring huge financial investment, skilled human resources, state-of-the-art equipments and other capabilities to participate and compete in global markets where sophistication of fish products matter. In LDCs where local fish firms lack skills, finance and machinery to meet overseas product standards, public sector support in building right institutions and addressing collective action problems is crucial.

## **1.2 Motivation of the Study**

The desire of governments and central banks around the developing world is to increase financial inclusion in the key sectors of the economy including agriculture and fish industry in particular. With a stable macro-economic environment, appropriate policies and

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<sup>9</sup> Source: 2003 population census in The Gambia

incentives, unrestricted financing of fish SMEs along the supply and value chains can support to a large extent economic growth and development in developing economies.

In an economy where agriculture plays a major role in generating employment, household incomes and exports among others, the role of finance to support its sustainability and further development is very crucial. With Sub-Saharan African region continually facing weak business environment, poor infrastructure, and weak institutional capabilities, formal agricultural financing remains a huge challenge which is further aggravated by government borrowing crowding out funds for private sector. Distributive trade financing dominates the sectoral loans and more agricultural financing is targeted at marketing than production in both Uganda and The Gambia. To increase production of agricultural commodity like fish, unrestricted financing is critical to support growth requirements, build technological capabilities, technical skills, acquire right equipments and develop institutions that enhance fish enterprises' participation and competitiveness in global markets.

The inland lake, river and marine fish endowments in the two countries are estimated at around 300,000-400,000 metric tons in 2004 (Fulgencio, 2009:436 and Mendy, 2009). With such importance attached to the fisheries sector in both economies, a study of financing, sustainable exploitation, export of fish resources and curbing of illegal and overfishing of juvenile fish species will be elucidating for both theorists and policymakers.

The weather and fish species in the exclusive economic zones (EEZs) of the two countries are suitable for aquaculture (fish farming) which could be developed as a coping strategy in the face of overfished capture fish. However, fish farming remains subsistence oriented and static growth in both countries raising serious questions over its development. However, the study will focus on capture fish resources in Uganda and The Gambia.

### **1.3 Problem Statement**

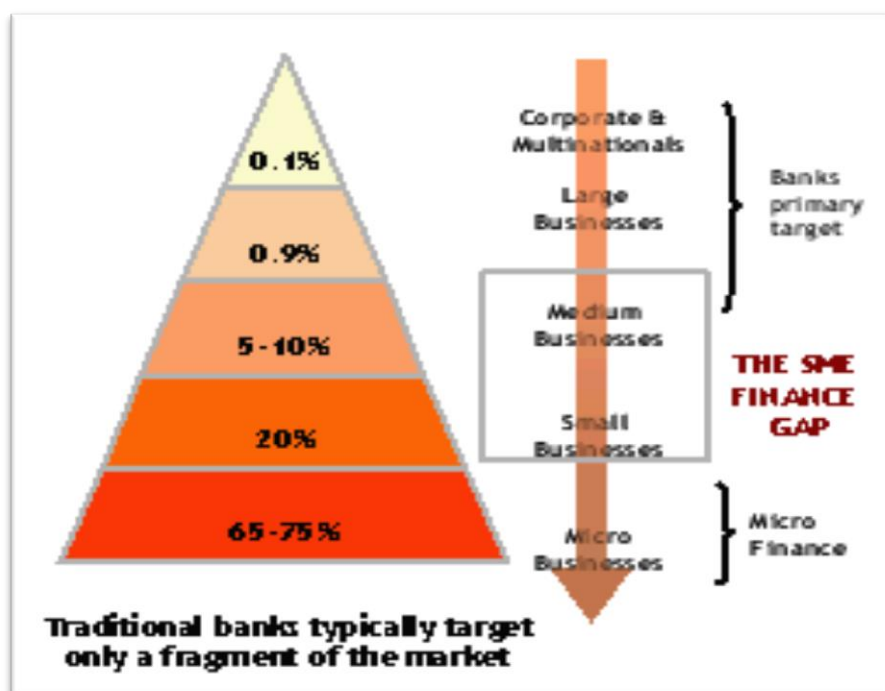
Although fish industry is very important to the economies of the two countries, fish SMEs continue to face difficulties in accessing formal finance (credit) from the banking sector. As a result, NGOs have over the years emerged to fill the gap by offering training and microcredit to address the difficulties in financial access. However, due to institutional constraints, funding limitations and other governance problems, they have difficulties in meeting SMEs' expanding financing requirements. Most NGOs are also not solely focusing on financial intermediation, combining with social intermediation that limits their ability in addressing fish SME financing needs.

The best known NGO microcredit model is the lending approach pioneered by Grameen Bank of Bangladesh. The approach made global awareness that the poor, low-income households and enterprises are good credit risk. However, large amount of continuing subsidies are required to sustain this lending approach and has not proved to be a global affordable model (Rhyne, 1998 and Robinson, 2001). Much reliance on donor funds has not been sustainable as growth prospects become limited and run the risk of closure if such funds dry out. Accordingly, Robinson (2001) argued that even if the long term continuance of these subsidies is assured, these assumptions do not match very well with the real world. NGO lending is considered unsustainable and MSMEs need a sustainable access to financial credit to support their growth prospects and remain competitive.

With uneven global economic growth disparity, many developing countries particularly the Sub-Saharan Africa continues to show poor statistics in enterprise finance (see McCormick 1999; Mead, 1998 and Tayinbeya, 2009) and they are still left searching for such elusive goal of fish SMEs' greater access to finance. Despite their importance in many developing

economies, fish SMEs are considerably constrained to compete globally due to acute lack of finance (Storey 1994; Tayinbeya, 2009; Fafchamps et al. 1995).

Figure 1.1 shows the financing of Micro, Small and Medium-sized Enterprises by banks and microfinance institutions (MFIs), in the process also shows the ‘‘financing gap’’ of about 28% of total enterprises that is neither finance by the banks nor the MFIs.



**Figure 1.1: SME Financing Gap**

Source: International Finance Corporation, (World Bank, 2009)

Commercial Banks target corporate bodies, large enterprises and a small fraction of medium-sized enterprises, forming only 1.2% of total enterprises (see Figure 1.1). The ‘‘financing gap’’ as shown in Figure 1.1 comprise of firms whose financial requirements are too high for microfinance funding but considered low for effective corporate banking model financing. Microfinance institutions (MFIs) target the microenterprises though

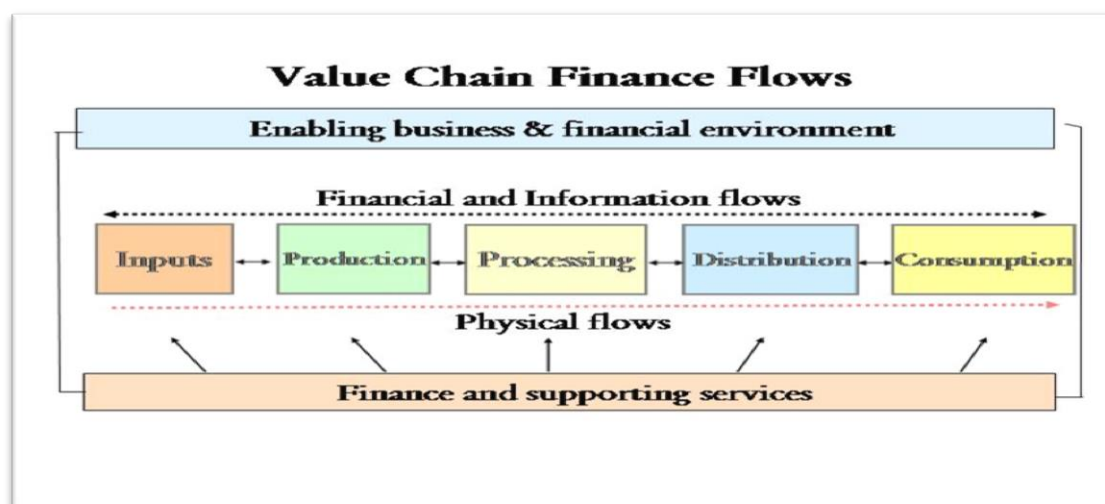
several studies (see Hulme & Mosley, 1996, 1998; Khandker, 1999; Simanowitz and Walter, 2002; Gibbons & Meehan 2002a and Rahman 1999) have argued that MFIs are only able to reach a small fragment of the small and medium enterprise market due to limitations in scale, funding and suitable products and services.

Several studies (Aryeetey, 1995; Storey, 1994; Kasekende, 2003) have argued that SMEs access to formal external finance is constrained by internal and external forces. Internally, SMEs in many developing countries are not creditworthy associated with weak management capacities at institutional level, low absorptive capacities, skills and weak linkages severely constraining their formal financial credit access to finance their growth requirements. On the external perspective, Fafchamps et al. (1994, 1995); Daniel (1994) and Rocca et al. (2009) argued that SMEs are considered by banks highly insecure and costly businesses to extend formal credit due mainly to their lack of the required collateral and formal records. Formal financial institutions consider SMEs as having the capacity to absorb only a small fraction of their loanable funds due to inability in meeting strict loan conditions. In this regard, funds are most often rationed or reduced by banks in extending credit due mainly to high intermediate costs including cost of monitoring and enforcement of loan contracts problems and to avoid high non-performing loans (Stiglitz & Weiss, 1981).

The value chain finance flows in Figure 1.2 shows financing requirements and linkages from inputs to final consumption. At the top is the essential macro-economic environment – enabling business and financial environment. Finance and other supporting services are required at each activity along the fish supply chain (see Figure 1.2). Through value chain financing, as detailed in Chapter four, fish importers in Europe assisted fish processing



firms with pre-financing and other supportive services which are instrumental in boosting fish production and exports in Uganda.

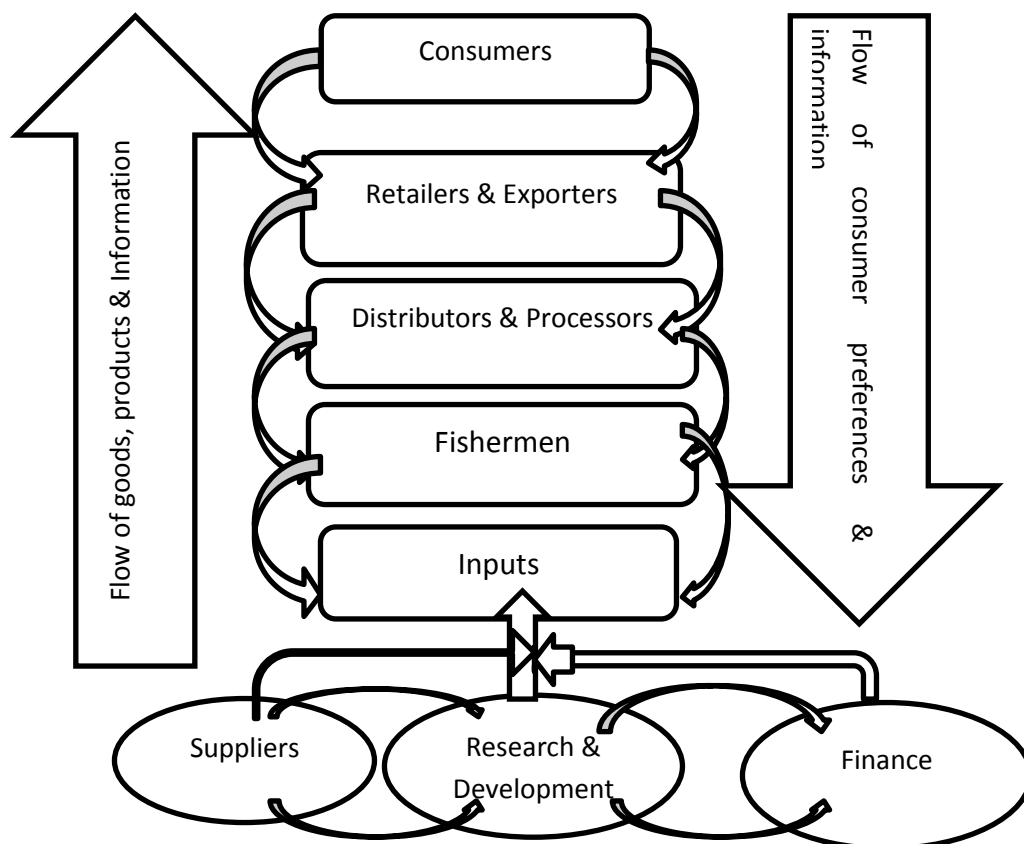


**Figure 1.2: Value Chain Finance Flows**

Source: FAO ( 2007:11)

For fish production and exports to increase considerably, input supplies in terms of equipments, finance and R&D are required from production through to processing and final consumption (Katz, 2006; Rasiah, 2007; Rogers et al. 2009). There is also the need for governments and meso-organisations to address obstacles face by fish enterprises to boost fish production, processing to add value and exports as shown in Figure 1.3.

The adequacy of government policies, infrastructure, production capacity and macroeconomic conditions are not generally supportive in most developing economies particularly in SSA to enhance higher fish production and export growth (Lall 1991, 2005; Rasiah 2006). Adequate supply of inputs, unrestricted financial access across fish enterprises and an appropriate research and development are indispensable ingredients to fish industry growth and development.



**Figure 1.3: Fisheries Supply and Value Chains**

Source: Adapted from Katz (2006)

As shown in Figures 1.2 and 1.3, the production and exports of fish is affected by many supply-side constraints at different levels from input suppliers through to local and overseas markets. The sustainable access to financial resources, technology, market information, trade policies and cooling systems are vital in the fish supply and value chains. Rogers & Pontius (2009) found out a positive relationship between supply-side effects and the performance of fish exports in the global market. Therefore, for fish exports to improve earnings, it is important that supply-side constraints are addressed.

Uganda and The Gambia are currently operating far below their Maximum Sustainable Yield (fish production capacity) of 30.8% and 26.30% respectively (Keizire, 2004, Fisheries Department, 2005). Like in many LDCs, supply-side constraints have weakened

the participation of many developing countries in the global trade (UNCTAD, 1998, 2006). It is further argued that supply-side constraints, such as, market information, access to export finance as well as government policies constitutes crucial points that many developing countries must consider if they are to fit in the competitive global market (Yenteshwar et al. 2005). From Figures 1.2 and 1.3, financing is needed at each stage from input suppliers, distributors, processors and exporters to the global distributive channels.

Fish is a unique good and perishable requiring efficient cooling system, efficient transport infrastructure (Limao & Venables, 2001; Marco, 2004) and above all compliance with quality and sanitary standards required in global trade. With demand volatility and price sensitivity, high financing costs and increasing electricity expenses may translate into high production costs considerably affecting export performance and impact negatively on export competitiveness.

Technological capabilities and institutional developments matter in fish production, export, participation and competitiveness in global market. The lack of it has denied economies to add value, increase exports, sustained growth and employment. Capabilities in complying with quality and sanitary requirements are essential in fish trade, Conditionalities and complexities in meeting product standards and importers' specifications constrain LDCs from participating in global fish trade. However, a country's level of technological competence is the basic factor constraining or enhancing its productivity, with technological developments the central driving force behind economic growth.

## **1.4 Research Questions**

As reviewed in the literature, institutional and technological developments matter in enhancing fish SMEs access to finance and to increase production and exports. In this vein, we formulate the research questions based on the research objectives and theoretical frameworks as follows:

- i. How important is the fish industry to the economies of Uganda and The Gambia?
- ii. How the institutional and technological developments enhance fish SMEs performance in Uganda and The Gambia?
- iii. What are the issues and challenges of fish SMEs access to formal finance in Uganda and The Gambia?
- iv. What is the relative performance of fish SMEs in Uganda and The Gambia relative to financial access, R&D and export Incidences?

## **1.5 Research Objectives**

The objective of the study is to examine enterprise finance and economic development with reference to fish industry in Uganda and The Gambia. Despite setbacks in fish enterprises' access to formal finance due mainly to market imperfections and information opacity of small fish enterprises, their role remains critical to socio-economic development of developing economies and Uganda and The Gambia in particular. Fish SMEs are central to the two countries' economic development therefore their sustainable access to formal external finance to a large extent and other productive resources will enhance sector growth and impact positively on socio-economic indicators.

The objectives of the study are:

- i. To assess the importance of fish industry to the economies of the Uganda and The Gambia.
- ii. To examine the institutional and technological developments in enhancing fish SMEs performance in Uganda and The Gambia.
- iii. To examine the issues and challenges of fish SMEs access to formal finance in Uganda and The Gambia.
- iv. To compare the relative performance of fish SMEs in Uganda and The Gambia relative to financial access, R&D and export incidences.

### **1.6 Significance of the study**

SMEs no doubt play an important role in the economies of both the developed and developing world. Apart from their contributions to employment, income distribution to reduce inequalities and poverty alleviation, SMEs are considered as engine of growth and seedbed of industrialisation in most economies. Understanding their financial constraints is indeed vital for policy-makers and bank managers as the financial limitations restrict their growth rates and contributions to the economy.

Many studies including Schmitz (1989) and Calderon & Mckel (1998) have reported that countries that have supported and encouraged entrepreneurship and SME activities had higher economic growth and development. Therefore knowing SMEs constraints will help to map out strategies to address them if they are to remain relevant in this competitive global business environment. Efforts in resolving these hurdles restricting SMEs and in

particular fish SMEs growth can be a powerful mechanism for increase socio-economic development.

This study offered new insights pertaining to the role of enterprise financing on the development of the fishing industry, particularly in developing countries. The literature on enterprise financing has focused largely on manufacturing and service industries and in developing countries concerns enterprises in clustering industry. Fish as an agricultural commodity, requires huge financing, technical, institutional, regulatory and social challenges. It is important to recognise that fish is a perishable commodity and requires considerable investments and trained personnel in maintaining, among others, strict hygiene and phytosanitary standards to ensure exports to external markets. Accordingly, access to financing is crucial to promote this industry both to enhance the export sector as well as to increase domestic consumption. The study has stressed, among others that young and small enterprises require special support to overcome the market imperfections that hinder them from accessing financing from external sources. Finance alone does not guarantee success in this industry. The study has underscored the importance of developing firm-level and national technological capabilities to enhance the productivity of this sector as well as to expand exports. In short, development of any industry requires the adoption of a holistic and integrated approach underpinned by sustained efforts of all the relevant parties.

Contrary to the common view (see Beck & Udell 1998 and 2006, Rocca et al. 2001), it has been empirically proved that debt is fundamental to the growth of SMEs at early stages of business life cycle, while capital structure is rebalanced at maturity for internal resources. This is relevant in countries where the financial markets are underdeveloped and highly inefficient. There has not been consensus on this matter among researchers. The gap

therefore exists making this research into the financing requirements of small and medium-sized enterprises in the fishing industry of the two LDC countries vital and timely.

Due to most SMEs characterised by information asymmetric and moral hazard and with market imperfections in most developing countries, they stand to have great difficulty in accessing formal credit. They become worst affected in formal financial access, making informal finance the only possible financing option. This has created the perceived conception among many commercial banks that small enterprises are difficult to bank particularly at the early stage of enterprise life cycle. Access to external finance to fish enterprises is crucial as it can re-energise this vital sector for food security, increasing incomes, employment and economic development with other very important supportive factors such as technological innovations, infrastructural development, enabling legal institutions, human resource skills and policy support, among others.

The study will add to literature of fish SME financing and technological capability building in the fisheries industry. The study of SMEs in the fishery industry is different from other industries requiring not only finance but technologies in maintaining the fish quality, freshness and taste throughout the supply chain. To participate in global fish trade, high hygiene standards are required at all levels with enhanced technological capabilities from landing sites, supply chains, processing and exports to remain competitive.

## **1.7 Outline of the Thesis**

This study is divided into seven chapters. The first chapter introduces the importance of fish industry in the two countries. It presented the background of SME financing at global level

narrowing down to fish SME financing in the two countries, motives of the study, the problem statement, research questions, research objectives and significance of the study.

Chapter two presents the theoretical and literature review of the thesis. It starts with introduction and definition of SME adopted in this study as it has no single recognised definition. It continues to present theoretical considerations (asymmetric information, trade, supply-side, demand-side, pecking order, tragedy of the commons and state theories) and reviewed past literature on SME financing and its importance in the developing economies, Sub-Saharan Africa in particular. Various terms were defined, gaps in the literature are identified and the steps this study has taken to address them are also highlighted. The latter part of the chapter reviews systemic quad, technological capabilities, fish industry challenges and expanding financial access frontier frameworks. The chapter ends with a summary of findings.

Chapter three focuses on the macro level, the importance of fish industry in the economy and assess its support to economic development in the two countries. It presents the problems of primary goods exports and the two views on fish trade – pro and anti-fish trade arguments. Methodology used in this chapter is also presented and weaknesses identified with past approaches highlighted. The two countries performance based on fish trade balance, imports in domestic demand, export elasticity of output, fish imports in total imports, fish exports in total exports and fish exports to GDP are examined. Risk factors of ecological and environmental costs, overfishing, food security and tragedy of the commons are also presented prior to summary of findings.



Chapter four presents the institutional change, technological capabilities and fish exports from Uganda and The Gambia with detailed background developments of fisheries sectors in the two countries. The macro, meso and micro coordination, institutional developments, role of international organisations, role of government, development of technological capabilities and their impact on fish SME performance (production and exports) are presented. The last part of the chapter presents value addition and summary of findings.

Chapter five is an analytical chapter on fish SMEs financing sources, constraints, R&D and export incidences in Uganda and The Gambia. It presents both the empirical and secondary data to provide a comprehensive finding on fish SMEs' access to external finance. Financial access, export and R&D incidences relative to size and age are tested to assess levels of correlation and significance. The secondary data presents sectoral formal financing, public and private sector formal financing and chapter ends with a summary of findings.

Chapter six presents comparative analysis of the two countries. Use is made of chi-square test on SSPS Version 21 based on financial access, export incidence, RDI, SME support, Inter-firm Strategic Alliance and BDS support. The chi-square test is conducted to test for significant difference between the two countries vis-à-vis financial access, export and R&D incidences.

Chapter seven completes the study with conclusions, implications for theory and policy, contributions and limitations of the study.

## **CHAPTER 2**

### **THEORETICAL CONSIDERATIONS AND LITERATURE REVIEW**

#### **2.1 Introduction**

Small and Medium Enterprises (SMEs) financing in the developing economies attracted much attention among many scholars and development economists globally. Its importance for socio-economic growth placed it high on development policy agenda in developing countries (see World Bank, 1993, 2004; King, 1996a; King and McGrath, 1999; Daniels, 1994; Mead and Liedholm, 1998; Beck et al, 2005, 2006; Biggs, 1996; Fafchamps, 1994, 1995). SMEs and fish SMEs in particular are important for socio-economic development in developing countries (Fulgencio, 2009; Abila et al, 2006; Jansen, 1999, 2000). They are flexible due to their special structures, adaptable to market conditions, versatile human resource skills, building subcontracting relations with large corporate enterprises and can be technologically efficient at specific tasks (Mezgar et al, 2000). Addressing effectively fish SMEs' financing and capability concerns could serve as a springboard for rapid economic growth as realised in Vietnam, Chile and most Southeast Asian economies (Saleh and Ndubisi, 2009; Katz, 2006; World Bank, 1993; Stiglitz, 2002).

In high-income countries, SMEs constitute 67 percent on average of the formal employment in the manufacturing sector and 45 percent in developing countries (Nader, 2010). Similarly, SMEs contribute 49 percent on average to GDP in high-income countries and on average 29 percent in low-income countries (IFC, 2007) due mainly to better access to technologies, financial credit and skilled manpower. SMEs accounts for over 95 percent of total established enterprises in European Union economies and about two-thirds of jobs and half of the turnover in non-agricultural sector (Rocca et al, 2009:5-6, European

Commission, 2005). In addition, SMEs produce 25% of OECD exports and 35% of Asia's exports (OECD, 1997).

Despite fish SMEs being crucial in the economy, it is paradoxical that they continue to experience acute lack of access to formal financial credit that has been identified as key constrain to enterprise growth (Shiffer and Werder, 2001) (also see Cressy, 2002; Beck et al, 2005, 2006, 2008; Vos et al, 2007; Paria et al, 2010). Fish SMEs' growth potentials continue to be limited (Rhyne and Otero, 1994, Namisi, 2005) due to several factors including unstable macroeconomic policy environments<sup>10</sup>, poor infrastructure, lack of access to finance, skilled human resources, appropriate technology, collateralised assets and inability to meet hard information requirements of financial institutions, among others. Due to these difficulties, most fish SMEs finance their activities through informal sources and trade credits.

Fish is a perishable commodity requiring strong capabilities and institutional support to maintain quality and hygiene fish handling along the supply chain to boost production and exports. The stringent technical and sanitary standards require huge financial investments to enhance fish SMEs participation and competitiveness in global markets where sophistication of fish products matter to a great extent.

This chapter presents the introduction followed by definition of SMEs as adopted in this study. The next section reviews theoretical literature followed the review of past empirical works on SME financing touching on relevant studies on enterprise financing, fishing industry and institutional and technological capabilities in developing countries. These are

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<sup>10</sup> According to UNCTAD (2006), the industrialisation policies implemented in many developing countries were bias in favour of large scale enterprises instead of promoting gradual and organic development of SMEs. The unfavourable macroeconomic policies in most developing countries have negatively affect SME financing, increase failure rates and reduce their impact on development.

reviewed for robustness and identifying gaps relevant to the research. The last section presents the summary of the chapter.

## 2.2. Definition of Micro, Small and Medium Enterprises

There is no single recognised definition of micro, small and medium enterprises (MSMEs), ranging from country to country and from one industry to another, normally based on sales turnover, total assets and number of employees (Berger and Udell, 1998; Becks, 2006). However, the standard definition puts SME businesses employing less than 250 people in most developing countries (Becks and Demirguc-kunt, 2006).

The International Finance Corporation (IFC) of the World Bank reported varying definitions of MSMEs based on number of employees in low, middle and high income countries (see Table 2.1). Several studies argued that though MSMEs are defined based on the characteristics of amount of capital investment, turnover and number of employees, however, cross-country characteristics matter in SME definition.

**Table 2.1: Definition of Micro, Small and Medium Enterprises**

Enterprise	Low-Income (Not more than) employees	Medium Income (Not more than) employees	High Income (Not more than) employees
Micro	5	10	10
Small	20	50	100
Medium	100	100	500

Source: IFC (2007:9)

Micro, small and medium-sized enterprise definition is complex and complicated with several donors and authors in various ways try to adopt definitions to suit their works. As a result, most international institutions would normally adopt a working definition to ease cross-country comparisons. For the purpose of this study, we will rely on the IFC (2007)

definition of SMEs based on the number of employees in low-income countries of Uganda and The Gambia being Least Developed Countries (LDCs). With most SMEs having difficulty in keeping proper financial records, such as turnover (total sales) and total assets, use is made of number of employees as the best proxy of size, thus being adopted a working definition in this study.

As shown in Section 2.1, SMEs constitute a significant part of private sector in both the developing and developed economies yet substantial evidence show that small enterprises face greater financing and growth constraints than large enterprises, thus explaining their retarded growth (Beck and Demirguc-Kunt, 2006). SME financing is based on the concept that they are engine of growth in many developing economies but their growth patterns continue to be impeded by market imperfections and institutional weaknesses (Beck et al, 2006; Berger and Udell, 1998, 2006). The financial and institutional developments do assist in alleviating SMEs' financial and growth constraints, thus leveling the playing field among enterprises of different ages and sizes.

The following sections show the theoretical and empirical studies of enterprise financing highlighting the factors that drive or impede fish SMEs' formal financial access.

### **2.3 Theoretical Considerations**

In this section, we attempt to review theoretical literature on enterprise finance and their role in developing countries' economies. Much work on enterprise finance in the international literature has been directed to emerging economies and in developing countries mainly on manufacturing industry and enterprise clusters. This study will focus

on fish SMEs' financing issues and their importance in the economic development of two the LDCs of Uganda and The Gambia.

We have applied theoretical issues of capital structure in SME financing and developed testable hypotheses that examined the capital structure determinants of fish SMEs' financing. The asymmetric information; pecking order, trade theory, tragedy of the commons, state theory, supply and demand-side theories have been reviewed extensively to analyse fish SME financing determinants. In this section, we review the different capital structure theories and relate them to the different theoretical attributes to examine fish SME financing complexities and decisions.

### **2.3.1 Asymmetric Information Theory**

The Asymmetric Information Theory (AIT) argues that entrepreneurs do have full information of their businesses' income streams and growth opportunities which are not readily available to external financiers - equity investors and creditors. The AIT further argued that smaller and younger firms tend to report higher financing obstacles than larger and older firms (Berger & Udell, 1998:615-618, 2006 and Becks et al. 2004, 2006). Imperfect information and high transaction costs are factors driving the limited access to external formal finance by fish SMEs (Stiglitz & Weiss, 1981:393). Due to limited access to information on enterprises' income streams by external financiers, it became difficult to appraise loan applications and monitor them efficiently to avoid non-performing loan. The problems of adverse selection and moral hazard are associated with SME financing across industries in developing countries; as a result, credit is rationed with the possibility that most eligible firms are denied credit (Stiglitz & Weiss, 1981:393-405), This is highly

manifested in LDCs where most micro and small businesses are weak and fragile to meet hard information requirements.

Formal information requirements of external financiers in the form of financial statements and business plans are difficult for fish SMEs to provide, or even if provided often lack detail, quality and rigor (Berger & Udell, 2005; and Michaelas et al, 1999:116). Most fish small enterprises are often not registered with the authorities and do not keep proper record of transactions to facilitate efficient appraisal and monitoring. According to North (1990) and Rocca et al. (2009:12), provision of collateral does relax information asymmetries which fish SMEs often find it difficult to provide adequate collateral. As a result, external financiers had no option but to limit their financing to vulnerable fish SMEs to control the incidence of non-performing loans. Most external financiers adopt a cautious approach towards fish SMEs to either reduce the amount of financing sought, ration or deny access altogether (Stiglitz & Weiss, 1981: 393-394). The problem of fish SMEs is more acute in developing countries associated with high risk profile, volatile rates of return, high incidences start-up failure (Storey, 1994), constraints of capital and skilled human resources to exploit potentials of growth and development. This is aggravated by the lack of accurate and reliable information, poor business environment, weak security of transactions and property rights protection problems (Djankov et al. 2007; North, 1990 and Fafchamps et al. 1994, 1995). These are prevalent in developing countries, particularly in Sub-Saharan Africa, constraining fish SMEs formal financial access; hence retard their economic performance and development.

The credit rationing argument by Stiglitz & Weiss (1981) highlighted the adverse effects of imperfect information on credit markets. The inability to differentiate between good and bad borrowers has forced financial institutions like commercial banks to use high interest

rates and fee charges as screening tools. Formal financial institutions usually identify an optimal lending rate above which no credit is granted to control risk of default. Due to high inefficient interest rates, most good borrowers are forced out of the credit market. With adverse selection combined with stringent lending conditions, such as provision of collateral, Djankov et al. (2007) argued that many SMEs in low-income economies like The Gambia and Uganda may have to cope with prohibitively high cost of fees and interest charges. These have the tendency of trimming profit margins and less viable investment alternatives to undertake (Fafchamps et al. 1994, 1995). However, in developed economies where information asymmetries are low coupled with enabling legal institutions to enforce contracts, credit markets tend to flourish in such environments.

Studies have shown that business start-ups are generally more informationally opaque constraining their access to external funding (see Beck et al, 2006; Berger & Udell, 1998, 2005 and Stiglitz & Weiss, 1981). Berger & Udell (1998) argued that access to external finance is expensive for young enterprises. Smaller and younger enterprises are less leveraged due to their high information opacity compared with larger and older enterprises. This has inhibited young and small enterprises from accessing external finance as they find it difficult to raise positive cash flows at initial stages of their existence<sup>11</sup> to service loan interest payments.

In the world of uncertain returns on investments particularly in LDCs, high transaction costs and its subsequent higher lending costs can increase the probability that fish SMEs may default due to higher repayment burden. Contrary to Stiglitz & Weiss (1981) argument

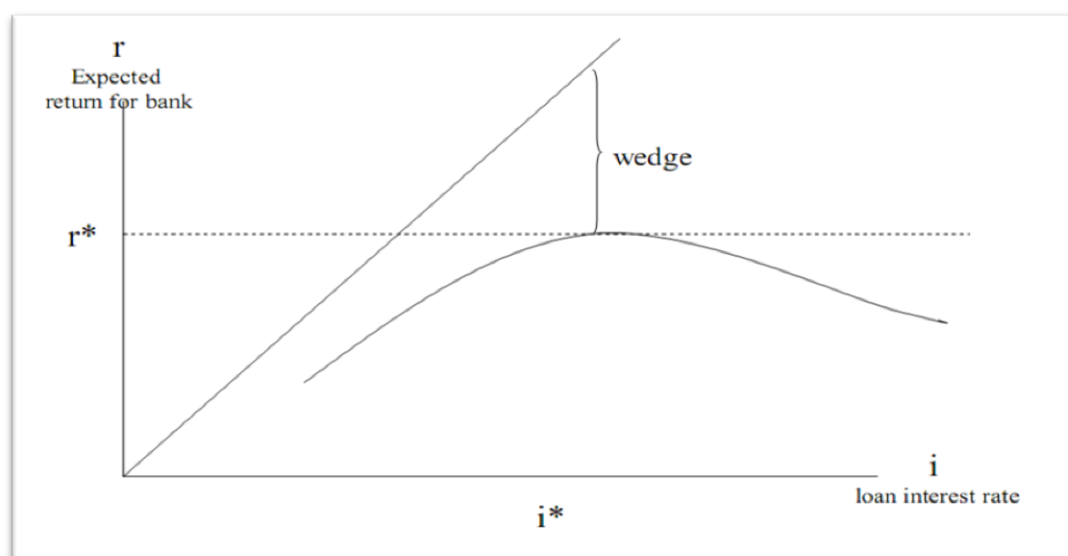
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<sup>11</sup> Tarinyeba (2009) among other authors argued that majority of small enterprises opt for other forms of finance particularly informal credit due to high costs, information asymmetric and other constraints in accessing formal finance.



that interest rates are increased as market clearing and screening tool, commercial banks may ration at a lower interest rate than the market equilibrium rate as exorbitant high loan interest may lead to lower expected returns (Williamson, 1987) as shown in Figure 2.1.

High transaction costs do not only increase cost of funds borrowed but has the potential of restricting small enterprises access to external finance. It is argued that while transaction costs are restraining for all enterprises, they are even more constraining for small enterprises.



**Figure 2.1: Adverse Selection, Moral Hazard and Credit Rationing**

Source: Beck (2007:34)

As interest rate increases, this will attract weak borrowers to undertake riskier projects with a higher probability of default. The dangers of using interest rate as a screening tool entice banks to use non-interest screening devices, such as, collateral and other hard information requirements (audited financial statements). As a consequence, banks are motivated to ration credit instead of allowing the interest rate to rise to the market clearing level as argued by Stiglitz & Weiss (1981).

However, the gap exists to employ innovative lending technologies designed to militate against these risks and improve fish enterprises' access to credit. These include group lending approach<sup>12</sup>, offering broader financial products and services (including savings, insurance and remittances, not just credit), market segmentation, training of credit officers to be sensitive to client needs and smaller loan amounts for the first time borrowers with higher repeated loans to follow. These are found to make differences in some countries such as Bangladesh, Indonesia, Kenya, Malawi, Uganda, Brazil and Bolivia (Hulme & Mosley, 1996, 1998).

### **2.3.2 Pecking Order Theory (POT)**

The Pecking Order Theory (POT) developed by Myers (1984) states that enterprises finance their businesses in a hierarchical manner. Myers (1984), Myers & Majluf (1984) argued that the choice of financing is based on the relative costs of the various financing sources. In this regard, the theory suggests SMEs prefer to choose internal financing sources (personal funds, retained earnings and profits) with relative lesser costs and they only turn to external finance (debt and equity) when internal funds are exhausted or inadequate. Therefore, POT shows that enterprises due to opacity problems tend to prefer retained earnings as the lesser information sensitive security (Rocca et al. 2009; Myers 1984 and Myers & Majluf, 1984) before external debt and equity capital<sup>13</sup> in the later stages through to maturity. The theory is very much relevant to fish enterprise financing based on its low capability features and acute lack of external debt and equity in LDCs like Uganda and The Gambia (Becks et al,

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<sup>12</sup> Peer pressure (social capital) also work well in many communities without the traditional collateral approach

<sup>13</sup> Pinegar & Wilbricht (1989) show that financial debt is relatively preferred to equity as a way of raising funds and keeping control of the business.

2006). It follows that the share of external debt in fish enterprises' funding structure is subject to their financial requirements over the life cycle.

Pecking Order Theory (POT) suggests that rational profitable SMEs tend to retain earnings and reduce their leverage ratio while less profitable firms will increase their leverage, demonstrating a nonlinear relationship between financial leverage and profitability. POT is very much relevant to fish SME financing due to their typical characteristics and high constraints they face in accessing external finance (see Holmes & Kent, 1991). Chittenden et al. (1996); Michaelas et al. (1999) and Rocca et al. (2009, 2011) show empirically that SME financing is line with pecking order theory, arguing that enterprise financing targets internal funds first before going external. However, Robb (2002) and Petersen & Rajan (1994) argued for a reverse POT as young firms need external debt to finance growth potentials. In this regard, entrepreneur' equity contribution is considered external to the enterprise.

Myers (1984) argues that there is no optimal capital structure instead enterprises finance their operations based on availability of internal resources and accessibility to external debt finance and equity investments. However, equity investment tends to dilute ownership and potential loss of control or even takeover. As a result, rational response of small fish entrepreneurs would tend to avoid equity investors and rely more on internally generated funds and external debt (Berger & Black, 2011). Relating POT to this study, small fish enterprises opt for internal funds and other informal finances before accessing external financing sources associated with high costs and stringent conditionalities of accessing such finances.

Addressing research gaps, the supportive role of public sector agencies, collaborative efforts in building institutions, effective linkages and better network cohesion can work around acute financing constraints of fish SMEs. The developmental role of the State is required to support small fish enterprises particularly at start-up when failure rates are high.

### **2.3.3 Supply-Side Constraint Theory**

Supply-side constraints are factors that limit the economies' ability to supply or export more goods to global markets. Efforts to address weaknesses in public sector policies and regulatory frameworks, governance, physical and financial infrastructural development, human resource skills and market information will effectively stimulate enterprises increasing access to formal external finance and enhance their global market participation and competitiveness (see UNCTAD, 2008, Fulgencio, 2009; Rutgers, 2010; Chandra & Kolavalli, 2006; Sachs, 2007 and Lall, 1992:168; Rogers & Pontius, 2007).

Most development economists have expressed doubts over free markets and global trade benefits to developing Sub-Sahara African (SSA) economies, in particular its agricultural export sector which is beset with severe supply-side constraints<sup>14</sup> (UNCTAD, 2006 and Fulgencio, 2009:436-441). Inefficiencies at firm level, lack of requisite human and financial resources, weak business environment, weak creditor right protection and costly doing business indicators in LDCs (see Gelb et al. 2007 and the global competitive commission, 2011) have to a greater extent undermined sustainable financial access and growth of fish

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<sup>14</sup> Despite some concessionary schemes such as the U.S' African Growth and Opportunities Act (AGOA) and the EU's Everything But Arms (EBA) most African economies failed to benefit from these opportunities due to inherent difficulties in accessing finance, low productive capabilities, lacking technologies, non-conformity with product standards and poor connectivity in global trade.

SMEs in developing countries to integrate fully in global markets (also see Rogers & Pontius, 2009 and Marco, 2004). Accordingly, the abilities of economies to address supply-side constraints are able to benefit from increased production, exports, rapid growth, increase employment, value addition and wealth creation.

Severe supply-side constraints have significantly reduced developing countries' ability to produce commodities in large quantities and exploit the gains in global trade (UNCTAD, 2008; Fulgencio 2009; Busch & Bain, 2004). This has resulted to weak industrial sector in SSA, turning the region into world's least developed economy (Sachs, 2007). Calls for joint corrective action suggest various policy measures among them being infrastructural development as the most prominent. The adequate supply of infrastructural services (water, telecommunication, power generation capacity, roads, transport, marketing and other enabling institutions) has long been viewed both in policy debate and academic literature (Aschauer, 1989 and World Bank, 1994) as key pre-requisite for economic development. Consensus has emerged on related empirical literature (Wodon, 2002 and World Bank, 2006) that under favourable conditions, infrastructural development can be critical in promoting economic growth and equity (Calderon & Servén, 2008).

There are evidences to suggest that transport costs in SSA are much higher than other regions with explicit and implicit costs in shipping delays particularly for landlocked countries like Burkina Faso, Mali and Uganda coupled with a relative higher cost of doing business (Gelb et al. 2007), pose a major barrier to regional and international trade (see Limao & Venables, 2001). In Uganda, large tonnes of fish are transported by land to Kenya seaport of Mombasa for shipment to Europe and other destinations with significant

transport costs reducing profit margins and sustainability.<sup>15</sup>. Limao & Venables (2001) concluded that SSA's record high transport costs and its abnormal low intra-trade is associated with poor infrastructural conditions (Gelb et al. 2007). Further to that, the works of Diao & Yanoma (2003) found that high marketing costs and an insufficient power generation capacity (also Estache & Vagliasindi 2007) have adverse effects on agricultural sector growth and the economy as a whole. This is true of The Gambia producing fish below its maximum sustainable yield (MSY) due to acute supply-side constraints affecting supply chains. These affect fish trade in volumes and values as shown in Figure 3.5. Fisheries industry in most developing countries and in particular, Uganda and The Gambia are faced with three major challenges:

- i. Sustainable exploitation of capture fish.
- ii. Upgrading landing sites, efficient hygiene standards and meeting sanitary and phytosanitary conditions- a key requirement for EU and US markets
- iii. Development of aquaculture in the wake of overfished capture fish for sustainable fish supply to meet local and overseas demands.

These are key challenges to developing countries where aquaculture remains subsistence and underdeveloped commercially in both Uganda and The Gambia. The exploitation of capture fish is far from sustainable and technological upgrading of fisheries infrastructure remains a huge challenge<sup>16</sup>. However, the role of public sector agencies in Uganda was

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<sup>15</sup> According to Djankov, Freund & Pham (2007), it takes 20 days to move export container from the factory to the nearest port in Shanghai or Kuala Lumpur but 96 days in Kampala, 116 days in Bangui and 71 days in Ouagadougou.

<sup>16</sup> However, developments in Uganda fishery sector in the early 2000 were triggered by efforts to address the fish export crisis. Though further developments in reaching frontier phase of fish technological developments and product development remains beyond Ugandan processing firms. The sector development remains low in The Gambia largely due to artisanal oriented fisheries.

instrumental in responding timely to the fish export crisis that almost led to the collapse of the industry. Government's collaboration with key stakeholders helped to address food safety and efficient hygiene standards, upgrade landing sites, laboratories and facilitate linkages within the industry to boost fish production and exports.

The theory of supply-side constraints remains robust in this study where fish production is below par in The Gambia while the uncontrolled fish production remains unsustainably exploited in Uganda. Fish production exported is under 12% in both countries (see Figure 3.5). This is associated with weak governance, poor infrastructure, weak production capacities and weaknesses in public sector monitoring and surveillance functions. To participate in the globalised trade and remain competitive requires addressing these supply-side constraints to a greater extent.

#### **2.3.4 Demand-Side Theory**

Several studies including Becks et al. (2005, 2006, 2008), Ayyagari et al. (2003), Storey, (1994) and Fafchamps et al. (1994, 1995) have argued that capital shortage is a major problem militating against SME growth. However, it is argued that financial institutions, at times, do often have excess liquidity to lend than SMEs were willing to borrow (Osei-Assibey, 2011:153). This is blamed on slow industrial growth of SMEs (low institutional developments) and their low absorptive capacities coupled with low capabilities and scale to meet hard information requirements of formal external financiers like banks (Berger & Udell, 1998, 2006). This makes most SMEs especially those in LDCs access to formal external finance difficult. Many small and young enterprises are forced to resort to informal financing sources, such as, personal, family, NGOs and trade credit to address their financing needs. However, many studies (Hulme & Mosley. 1996, 1998; Robinson, 2001)

have argued that informal sources are inadequate to meet enterprises growth financing requirements.

Despite the push (competition and profit margin squeeze) and pull (profitability) factors to increase SME financing by banks, fish SMEs in most LDCs like Uganda and The Gambia fail to show effective demand for bank loans. Quite apart from the disincentives driving banks away from SME financing ranging from high transaction costs to perceived too risky venture in banking small enterprises, SMEs are also lagging behind in meeting loan appraisal, processing and repayment requirements of banks. The low number of loan demands may be due to self-exclusion resulting from financial illiteracy, cultural barriers or the conditionalities and complexities of accessing formal external loans (Stiglitz, 1990:351-353). In addition, viable investment projects may be lacking in the economy that deserve financing based on targeted monetary returns. This is robust in this study as small fish enterprises resort to low cost financing sources such as personal, family and principally trade credit to meet their financing needs.

However, gap exist in the literature for more financial education, encouraging healthy use of financial products, provision of business development support services, general reforms of institutional framework and business environment that would enhance market demand for loan products among fish SMES in line with Kaplinsky (2012).

### **2.3.5 Trade Theory**

Trade theory to classical economists is a desirable goal with complete trade liberalisation and removal of bottlenecks to enable entrepreneurs to trade in their areas of comparative advantages. The literature on free trade is not robust enough as on the one hand; it fails to



protect important social and environmental objectives (Abila et al. 2006:8; Bene 2008:1-3; kacznsky & Fluharty, 2002 and Fulgencio, 2009). The unacceptable ecological damage and other negative social impacts often associated with illegal and unregulated trade are very much relevant in Lake Victoria and marine fisheries of The Gambia, resulting to huge costs (Odongkara, 1999:6 and Department of Fisheries, 2011). It puts in danger the future water resources and livelihoods of the communities in pursuit of foreign exchange earnings through fish exports (Abila, 2000, 2006; Jansen, 1999 and Fulgencio, 2009). Again, food security and poverty reduction are rarely featured in global free trade. Abila (2000) argued for alternatives ways of managing competing objectives of economic growth, food security and sustainable fishery resource management. New trade rules, according to Miller (2007), are needed that will reconcile the global fisheries demands with local ecological conservation, social and the welfare of the communities.

On the other hand, global trade affects economies differently (Lall, 1992, 2001a, 2002, 2005 and Rasiah, 2004, 2007), benefitting those that built right technological capabilities and failing others that could not exploit the opportunity. Economies with enhanced technological capabilities stand to achieve sustained growth, value addition, surging employment and increased exports. The lack of it as in most SSA countries has denied the region similar experience (Lall, 1992:166-173 and Rasiah 2006, 2007:211). Reliance on exports of primary commodities with little or no value addition constrained most SSA countries from participating fully in international markets of processed products where sophisticated systems, high manpower skills, advanced technological capacity<sup>17</sup>, state-of-

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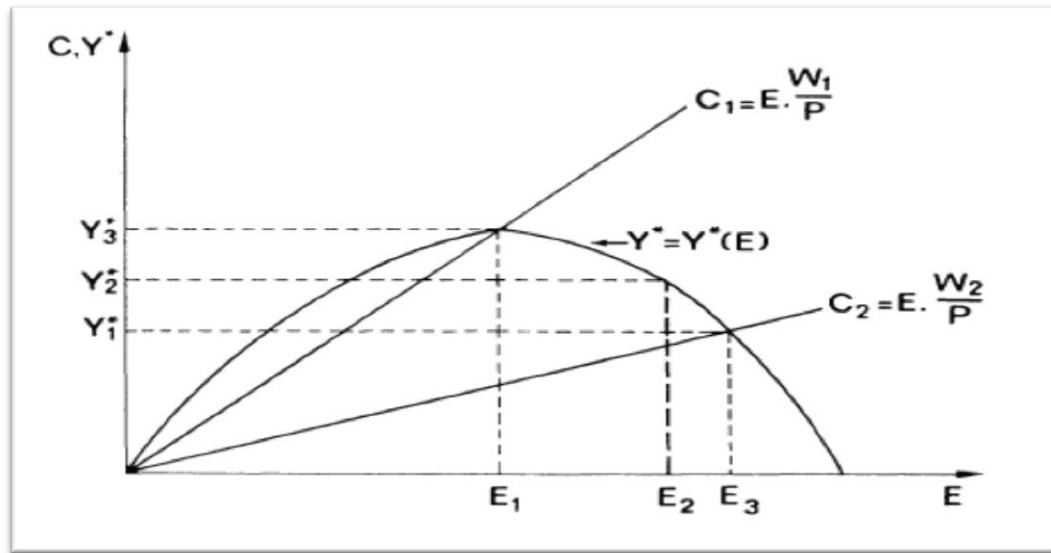
<sup>17</sup> Technological knowledge and capacity varies among firms and to gain mastery of it required skills, effort and huge investment to build modern processing plant and installation of cold storage facilities (Lall, 1992)

the-art fishing infrastructure, capacity to meet sanitary and quality requirements and connectivity in the global supply chains matter.

It is robust in this study with fish exports volume and value much lower and erratic particularly in the case of The Gambia. The domestic firm and national capabilities remain weak in both countries limiting fish production and exports. More public sector effort is needed in collaboration with key sectors to address these global trade capability issues through FDI and its diffusion, network cohesion and connectivity in international markets.

### **2.3.6 Tragedy of the Commons Theory**

The tragedy of the commons of Hardin (1968) and the Malthusian theories can relate to the pressure on oceans, lakes and rivers in meeting the fish food demands of an increasing global population. The demand far outstrips the sustainable yield of capture fish resources. Historically, it is assumed that there is limitless supply of fish in the waters. Fishing has over the years become more industrialised in developing countries due to pressures from the developed economies with associated risks of illegal fishing of juvenile fish leading to the depletion of wild fish stocks. As a result, fish farming emerges as a coping strategy to address the shortfalls in capture fisheries. However, both activities have come under intense criticism as they are capable of causing significant environmental problems and further effects of overfishing thus threatening wild species extinction.



**Figure 2.2: Threats of Overfishing**

Source: Trawavas, (2002:1032), Note: Y = Sustainable Yield, E = Fishing Effort

The traditional theory of fishing in Figure 2.2 examines the interaction between the fish population and the ever increasing global demand for fish. The economic equilibrium of fish depends on the size of the fish population and the demand on the industry to supply fish. The theory suggests that given the parameters such as water temperature, fish food supply and the level of activity of natural and human factors, fish population will increase to a definite equilibrium size. There will be a steady yield of fish at a given level of fishing effort at this population level. This is the "sustainable yield" (at  $Y^* = Y^*(E)$ ) suggesting this rate of yield to the fishing industry is exactly met by the natural increase in the fish population. At a higher level of fishing effort, say at  $E_2$  and  $E_3$ , the fish population declined and the sustainable yield decreased to  $Y_2$  and  $Y_1$  respectively.

Thus, it is argued that the sustainable yield is at an increasing and decreasing function of fishing effort as shown in Figure 2.2, where  $Y^*$  stands for sustainable yield and  $E$  for fishing effort. Simply put, fishing effort is assumed to be perfectly elastic supply at cost  $W$ ,

and that the demand for fish perfectly elastic at price  $P$ . The characteristic feature of fishery is that there is a "common property" resources open to all with no fisherman possessing rights of ownership over others in capturing fish. The yield of fish in response to effort is  $Y^*(E)$  and the total cost curve is expressed in terms of fish by the equation  $C_1 = EW/P$ . The zero-profit equilibrium condition,  $PY = WE$ , is represented by the intersection of  $C_1$  and  $Y^*(E)$ . The supply price of effort is  $W_1$ , the total cost curve is  $C_1$  and the equilibrium fishing effort is at  $E_1$ . At a lower supply price for effort  $W_2$ , the total cost curve is  $C_2$ , the equilibrium level of fishing effort is at  $E_3$  with a lower yield (Trawavas, 2002).

Throughout history, increasing human population has driven an urgent need to increase agricultural production to avert successive 'Malthusian'<sup>18</sup> theory of famine, malnutrition and disasters. The application of science and technology to agriculture yielded significant results, enabling yields to increase considerably since 1950s (Trewavas, 2002). The Malthusian crisis was once again foiled with the use of scientific knowledge and technology (engineering, pesticide and fertilizer development) to agriculture that yielded extra-ordinary food production. The concept of Malthusian theory is applicable in this study in that there are no too few fish in the two countries' EEZs while increasingly, too many people depend on fish for diversified livelihood support resulted to decline catches. With the increasing pressure on capture fisheries and the growing demand at local, regional and global level becomes difficult to meet. This calls for more investments in aquaculture to supplement capture fish supply in meeting the growing fish demand. With the global population estimated to reach nine billion by the middle of the century (Fulgencio, 2009),

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<sup>18</sup> British economist, Thomas Robert Malthus wrote *An Essay on the Principle of Population* (1798), argued that population increases far outpace increases in food supply, with inevitable disastrous results, unless the increase in population is checked by moral restraints or war, famine and disease.

new ways must be adopted to increase fish yields while preserving natural habitats and biodiversity.

The Malthusian crisis affecting fisheries is caused by the application of modern fishing methods in the industry with many fishing firms and governments responding to huge investments in equipments and technology to capture fish. Radio and satellite navigation using solar technology allows fishermen to better locate fishing sites while new fish aggregating devices intensifies the harvest. These pressures and resultant overfishing referred to as *‘arms race within the marine fisheries’* (Trawavas, 2002) threatens the extinction of wild fish species, destruction of the ecosystems and other unforeseen consequences. Without massive limitations of fishing fleets, ensuring responsible fishing, monitoring and enforcement of fisheries laws and increasing aquaculture to supplement shortfalls in capture fisheries, the pressure on oceans, lakes and rivers will continue at a greater risk of overfishing, future fish resources and associated ecology and environmental costs. The average size of commercially valuable fish species such as Nile perch in Uganda and demersal in The Gambia has continued to drop over the years. There is an urgent need to impose minimum fishing net size limits or capture moratoria to allow fish species to reach reproductive age and size before being captured. Trawling technology also capture large amount of ‘by-catch’ (mainly juvenile), most of which are discarded compounding the impact on both present and future fish production, ecology and the environment.

Tragedy of the commons is robust in this study as commercial fish species are highly overfished in both countries and aquaculture is underdeveloped. Enforcement of fisheries laws in ensuring the use of right fishing gears and ban on juvenile fish capture to allow fish species reach reproductive size and age before capture remain a challenge.

### **2.3.7 State Theory**

State theory focuses on developing the welfare of the people in terms of inclusive development, good governance and regulation (Johnson 1982; Elliot & Wilson, 1996; Das 1996; Wong 2004, Jessop 1990). The term developmental state is characterised by having strong state intervention as well as extensive regulation and planning. Chalmers Johnson (1982) is the pioneer of the concept of the “capitalist developmental state”. He defined it as ‘‘a State that focuses on economic development (defined as export-oriented industrialisation) and takes necessary policy measures to accomplish that objective’’ (1982:25). He cited Japan’s economic development trajectory and most ASEAN countries where State led the industrialisation drive and took developmental functions. While there is limited government ownership of industries, private sector is rigidly guided and supported with enhance provision of public goods. It is argued that the success of East Asian ‘‘Tigers’’ did stem, in part, from State intervention (Polidano, 2001). The promotion of economic development in ASEAN is linked to networks of meso-organisations (public-private research institutions), private industry associations (often set up by State initiative) and collaboration with international development agencies (Polidano, 2001; Onis, 1996; Wong 2004; Stiglitz, 2002; Rasiah, 1996).

However, there is no consensus in the literature of governments’ role in SME industry and fish SME financing, in particular. The different ways of government intervention is still being researched with no standard answers to all countries and markets and there are no pre-designed policy packages from the shelves. What is suitable in one country may not work in others, calling for a context-sensitive approach that takes into account country specifics (Honoban & Beck, 2007).

Of least controversy, however, is government's role in providing contractual and informational framework, providing key institutions and ensuring stable macroeconomic environment. It is through these roles that governments can help push outwards the Access Possibility Frontier (APF) and ensure SMEs long-term sustainable access to external finance. The reforms of the business environment may not focus directly on SMEs but can help close the gap between enterprises of different sizes and level the playing field. Through these policies, government assists in developing markets that can be used by banks to reach out to SMEs.

The neo-classical economists, such as, Freeman, Adman Smith, Milton Friedman among others, have advocated for laissez-faire (free market) policy, a slogan for no government intervention. Accordingly, they viewed the maximum point of government intervention is reached when it provides policy framework and that the rest is up to the market. However, it is argued that neo-classical thought of free market is not self-correcting and market cannot regulate itself justifying the need for State intervention not in owning assets but act as facilitator in the provision of infrastructure, basic platforms for incremental innovations, financial governance and build necessary partnerships with private sectors for growth and development (Lall, 1992; Stiglitz 2002; Vinanchiarachi, 2010). These are beyond private sector to deliver making role of government quite indispensable. Against this background, Stiglitz (2002) referred to free market, neoclassical and neoliberal belief in the supremacy of the market as disastrous for developing economies, particularly in LDCs (also see Lall, 1992, 2005). The approach seeks to minimise the crucial role of government arguing that the "invisible hand" of the market will ultimately address unemployment, poverty and other ills for society. He criticised the policy as a blend of ideology and worst thinking,

instead advocated for the establishment of key institutions and the increasing role of government in public-private partnerships for growth and development.

In the same vein, Matlosa et al. (2002) argued that the government and market interactions may be characterised as relatively new phenomenon, tasked with creating well-functioning markets with effective legal systems, efficient credit administration, standards, physical and lending infrastructure and if necessary, to act as a temporal entrepreneur of last resort (also see Ajakaiye & Page, 2012; Aryeetey & Moyo, 2012). It must not simply be a case of ‘government versus market’ in the development process but rather as complementary agents of economic development. Ajakaiye & Page (2012) argued that governments must work with the market as public action moves beyond the regulatory reform agenda in addressing the physical, financial, institutional and knowledge constraints limiting fish SMEs’ growth and development (also see Aryeetey & Moyo, 2012; Page, 2012).

It is argued that markets do not expand and progress spontaneously, they rely on the right kind of government policy to use innovative ideas - synergies, increasing returns, learning, adopting, adapting and commercialise knowledge for growth. The propellant of this process of evolutionary economics (see Lundvall, 1994; Nelson, 1995, 2008; Lall 2005) is learning, acquisition of new knowledge and the significant role of government in the provision of human skills and apprenticeship. Studies have shown that without government intervention with right policy framework and incentives programmes, micro, small and medium enterprises will ever remain marginalised in the economy despite their importance in the socio-economic development in developing countries. Uganda government responded under crisis situation to address the fish export crisis though inadequate to reach frontier



phase but the situation in The Gambia was different, lacking supportive public sector policies to trigger dramatic changes in the fishery industry.

The gap exists in the above theories in addressing difficulties of fish SMEs' access to formal credit and participates fully in global fish export markets. Addressing these constraints will go long way in easing fish SMEs' financing constraints and growth potentials. These challenges are greater in poor developing countries like Uganda and The Gambia impeding their economic performance and productivity. However, building institutional capacities, strategic role of government, institutional innovations, linkages of micro, macro and meso-organisations, developing tailor-made approaches, provision of range of products and services and participating in appropriate R&D can work around the institutional and infrastructural deficiencies and eventually relax the barriers to fish SMEs' financial access and industry development. Effective enforcement of fisheries laws which remains a challenge in both countries can limit the dangers of overfishing, ecological and environmental costs and protect the present and future wild fish resources.

## **2.4 Literature Review**

In this section, we concentrate on other past works on enterprise finance particularly in developing countries. The literature on financial sector developments, enterprise life cycle financing, expanding financial access frontier, technological capabilities, systemic quad, institutional developments, business environment issues and microfinance are reviewed relating them to fish enterprise financing in LDCs of Uganda and The Gambia.

### **2.4.1 Financial Sector Development**

There has been consensus among many development economists, including Becks, Demirguc-Kunt, Laeven & Levine (2005); Levine (1997); Demirguc-kunt (2008) and Hussein & Demetriades (1996) that financial sector development relieves constraints on enterprise financing obstacles. Accordingly, Levine (1997:688-726) argued that financial sector development is an important ingredient as it makes credit available for SME financing, thus enhancing economic growth. Enterprises' lack of access to credit has been identified as one of the factors that not only engender poverty and income inequality (Demirguc-Kunt & Levine, 2008) but also constrain economic growth and development (see Flessig, 1996). There is general consensus among many researchers on a positive finance-growth nexus and substantial empirical evidence exists that supports this trajectory (Levine, 1997, Hussein & Demetriades, 1996, Demirguc-Kunt, 2008).

The theoretical and empirical research on financial development and economic growth is reviewed with the evidence suggesting that both financial sector development and markets matter for enterprise finance and growth under conditions of stable macroeconomic environment. The theory further shows that financial sector development relaxes external financing obstacles facing SMEs which confirms that financial development influences economic growth (Levine & Demirguc-Kunt, 2008; King & Levine, 1997; Rajan & Zingales, 1996).

The policy arguments of McKinnon/Shaw school was that policy restrictions in the financial sector regarding setting interest rate ceilings, raising reserve requirements and directing credit allocations by governments, may reduce lending to SMEs and distort the pattern and speed of financial development, hence constraining economic growth (Levine,

1997; King & Levine, 1993b and Beck et al, 2005). Such policies may reduce banks' liquidity, slow down competition and set in inefficiencies in the banking sector. However, doubts were expressed by some economists, such as Lucas (1988) and Chandavarkar (1992) on the role of financial system in economic growth and development. Despite contrary views, the works of Levine (1997) on cross-country case studies at industry and enterprise levels and Rocca et al. (2009, 2011) showed empirically the lack of financial development crucially affects enterprise financing and the speed and patterns of economic development. The study of Love (2003) also found strong negative nexus between sensitivity of investment and financial market development and found that financial development decreases the effects of financing constraints on investment and relaxes small-sized enterprises financing bottlenecks (Laeven, 2003; King & Levine, 1993b).

The works of Hussein & Demetriades (1996) and Levine & Demirguc-kunt (2008) are indeed robust on financial sector development on enterprise access to formal finance. This is evident in most developing economies like SSA where financial sector is shallow and underdeveloped with commercial banks failing to show much presence in financing small enterprise market. This coupled with market imperfections; institutional weaknesses and poor infrastructure make SME financing a huge challenge in LDCs of SSA. Much collaboration, adoption of technologies in financial products delivery, addressing collective action problems and crucial role of public sector agencies can be viable way forward in increasing SMEs' financial access.

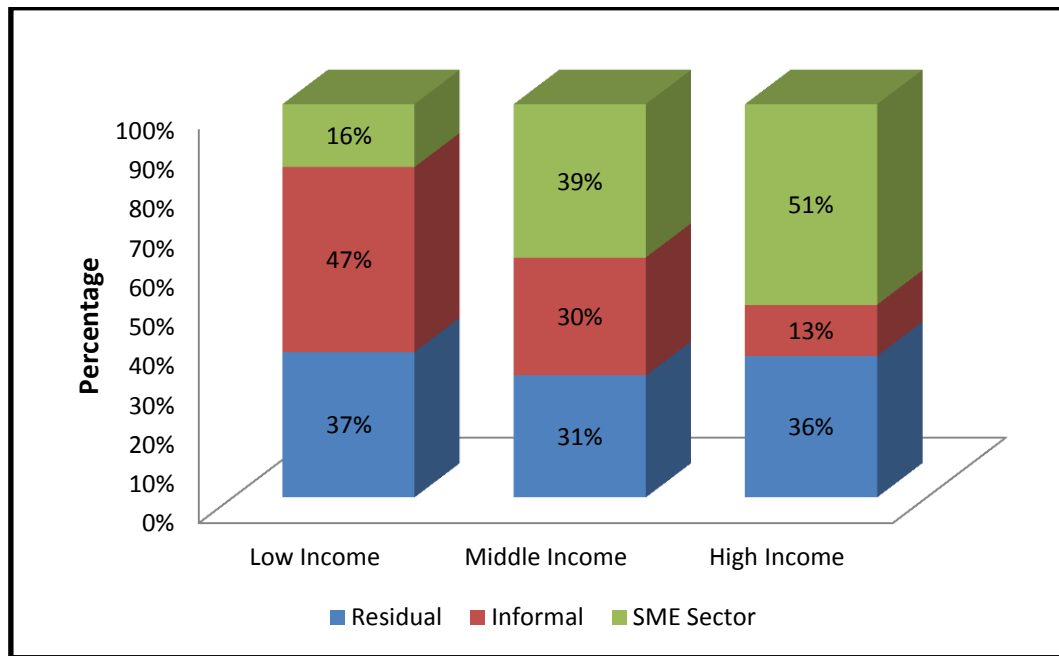
On the financial and institutional development impacting on SME financing, Ayyagari, Beck & Demirguc-kunt (2003) using cross-country data, show empirically that SMEs unrestricted access to finance can increase their contributions to employment and share of GDP in Low, Middle and High-Income countries. Information from 54 countries that

defined SMEs at 250 employees (SME250) and informal sector from 76 countries were examined to show their share of total employment and GDP in developing, transition and OECD countries. The empirical results on SME and informal economic sector share of total employment and GDP varied considerably across countries due largely to levels of financial and institutional development, hence its impact on SMEs' access to external financial credit.

Ayyagari et al. (2003) show the contribution of SME sector to total employment and GDP across different economies with a sharp increase in the SME sector's contribution to total employment of 32% in the low-income economies, 57% in middle income to 64% in high income economies (Ayyagari et al, 2003:10) due mainly to SMEs' relative access to external finance, equipments and other productive resources across economies.

The SME share of GDP also recorded similar trend with an increase from 15.56% of GDP in the low-income countries to 39% in middle income and 51.45% in the high-income economies (Ayyagari, 2003:11). It follows that an upsurge in SME sector's contribution to employment is followed by an increase in GDP share contrary to earlier studies of Snodgrass & Biggs (1996).

The findings in Figure 2.3 show a strong positive correlation of SME sector contribution to both total employment and GDP per capita while informal employment and informal GDP were negatively and significantly correlated to GDP per capita (Ayyagari et al. 2003). It follows that SME sector's contribution to employment and GDP are highest in high-income economies compared to Middle and Low-income economies due mainly to levels of financial and institutional developments.



**Figure 2.3 SME and Informal Sector Contributions to GDP**

Source: Ayyagari, Beck & Demircuc-Kunt (2003)

Note: Residual includes sources such as large enterprises and public sector

Showing informal economies' contribution to GDP, the results show a reverse of SME sector with steady decline from 47 percent in low-income economies, 30 percent in middle-income economies and only 13 percent in high-income economies. The study shows that SME sector contribution to the economy is prominent in higher income countries recording 51% through to 16% in low-income economies (Ayyagari et al. 2003:10).

On the other hand, the study was able to show that the informal sector generated a considerable high proportion of median employment than the formal SME sector in developing countries of the low and middle-income groups. In the low-income economies, while the informal sector recorded 29.14 percent of total employment, the SME sector generated only 17.56 percent (Ayyagari et al. 2003:10). In stark contrast, the informal sector registered only 15.16 percent while the SME sector recorded 57.24 percent of the total employment in the high-income economies.

The findings of Ayyagari et al. (2003) show empirically that with unfettered access to finance, SMEs have the potential to increase their contributions to total employment and GDP. However, their contributions become more meaningful in economies with the positive correlations of other characteristics, such as developments in financial intermediation, effective legal systems, conducive business environment and competition as shared by Levine (1997), Beck et al. (2004, 2006, 2008), North (1990) and Demirguc-Kunt, (2007). The above supports the view that financial and institutional development can ease SMEs access to finance and enhance their growth.

Works on financial and institutional developments are very much relevant in this study showing their relative developments in Uganda than The Gambia, thus better financial access and an enhanced fish enterprise performance in the former than the latter.

#### **2.4.2 SMEs Life Cycle Financing and Factors Influencing Financial Access**

The general financial theory teaches that enterprises financial needs are not homogeneous instead, the state of enterprises' life cycle, financial resource availability and the associated cost of capital determine their financial needs (Berger & Udell, 1998, 2006). Kaplan et al. (2003) argues that the changing nature of asymmetric information that constrains small enterprises drives their financial access and growth cycle from start-up through to maturity. The financial requirements of SMEs change over time, based on their ability to raise internal resources, finance growth potentials, and the risk factor considerations. As a result, SMEs at start-up tend to have high levels of information opacity; greater growth potentials and smaller size requiring special capital structure drivers such as informal finance, debt and equity while opting for specific financing mechanisms, such as, retained earnings in the

later stages to maturity (Gregory et al, 2005). SMEs financing needs are complex and the appropriate options depend on their access to different financing solutions to finance growth in the light of asymmetric information.

Rocca et al. (2009, 2011) empirically examined the role of external finance in business life cycle and the different financial determinants of debt/equity ratio throughout the life of small enterprises in Southern Italy where financial sector development is weak. Their study have shown that small businesses consistently reported higher financing obstacles than large businesses and that size, age and ownership largely predict enterprises' financing obstacles (see Schiffer & Weder, 2001). Beck et al. (2004, 2006) and Kounouwema et al. (2011) found out that old, large and foreign-owned enterprises report less financing obstacles due largely to more sophistication, track record, good reputation and better managed than young, small and locally-owned enterprises. Beck et al. (2004) used World Business Environment Survey (WBES) database of over 10,000 enterprises in 80 countries to assess the determinants of enterprise financing obstacles. Their findings were consistent with SME financing literature that younger, smaller and locally-owned enterprises report higher financing constrains than older, larger and foreign-owned firms and the results also reported that financial and institutional developments matter as a very important country characteristics showing cross-country variations of enterprise financing constraints.

The works of Beck et al. (2004) also show that young, small, non-listed, non-grouped, national and domestic-owned enterprises report more financing constraint (see Michaelas et al. 1999; Beck et al. 2002; Rocca et al. 2011). The study also tested correlation of stock market listing and industry group affiliation (clustering) with easing SME financing. The

findings were consistent with the literature which suggest that information opaqueness of listed enterprises are on average lower due stock exchange reporting requirements therefore report lower financing obstacles.

Enterprises in the same industry are considered to report lower financing constraints due to access to group internal cash flow (Shin & Park, 1999) and as Hoshi et al. (1991) argued, the group is more likely to build closer relationship with banks. Geographical location and ownership type are tested to assess differences in financing constraints. Multinationals and foreign-owned firms were found to have convenient access to international external financing sources hence report lower financing constraints relative to local firms (also see Sembenelli et al. 1996; Harrison et al. 2003).

Accordingly, Berger & Udell (1998) and Beck et al. (2006) found that 39% of small enterprises report financing as a major constrain compared with 36% by medium and 32% by large enterprises. The high financing constrain reported by small enterprises matched not only with literature in both developed and developing economies but also confirms asymmetric information and pecking order theories' predictions (Becks, 2005; Stiglitz & Weiss, 1981; Myers, 1984; Schiffer & Weder, 2001 and Rocca et al. 2011).

Studies of IFC (2007) have argued that SME financing is in transition from a market that was viewed too difficult to service to one that is becoming a strategic target of formal finance institutions worldwide. The “missing middle” explaining the gap in SME financing is decreasing as SME banking continues to grow very fast in emerging economies though the gap is still crucial in low-income economies where it is considered widest. Commercial banks in the developed and emerging economies are unlocking the SME market due mainly



to higher returns on assets (ROAs) with leading banks reporting ROAs of 3–6 percent for their SME operations compared with 1–3 percent on corporate clients (IFC, 2007). Many LDC economies are also coming up with supportive policies to increase SME access to finance (see Jaabi 2004; Rasiah 2011), such as addressing legal and regulatory barriers and building the required credit infrastructure.

However, the key to the SME financing, growth and its impacts on economic development could be that formal financial service providers would have to comprehend the peculiar needs and preferences of SMEs and develop tailored-made approaches to address the historic enterprise financing challenges of high credit risk profile and cost of service. Formal financial institutions are finding ways to manage both costs and credit risk as they manage their clients. The banks' current portfolio provide a starting point for targeting new businesses and also a source of valuable data that can predict the risks associated with SMEs. Developing this capacity to predict risk with complete reliable financial information by using mass market tools such as credit scoring (Moore, 1997), Management Information Systems (MIS) and Information Technology have enabled banks to more effectively screen potential SME clients (IFC, 2009). The Industrial Credit and Investment Corporation bank of India <sup>19</sup>(ICICI), Wells Fargo, Compartamos in Mexico and Standard Chartered bank are cited as good examples that have demonstrated innovative systems of banking SMEs (World Bank, 2007). However, the situation in LDCs where these technologies are limited or absent remains to grapple with SME financing systems.

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<sup>19</sup> ICICI Bank Limited of India has 2,883 network stations and 10,021 ATMs in India and operating in 19 countries globally including Europe, the United States and Asia regions.

#### **2.4.2.1 Enterprise Size**

In line with the arguments of Wijst & Thurik (1993) and Diamond (1991), large enterprises do have more collateral assets and stability of funds flow, hence ability to manage more financial debt than small enterprises. With developing countries characterised by high administrative expenses and information opacity, small enterprises face difficulties in accessing formal bank loans due to their high risk profile, information opacity and less collateral to offer relative to large businesses. Small enterprises finance a small fraction of their investment with formal bank finance, on average 13% compared to 27% by large enterprises (Beck et al. 2004 and Ayyagari et al. 2003). Small enterprises instead finance a larger share of their business with informal sources of finance - trade credit, owners' equity, family and friends (see Myers, 1984; Stiglitz & Weiss, 1981; Fafchamps et al. 1994, 1995)

It is also noted that large enterprises have better reputation in the financial market to borrow more debt than small-sized enterprises (see Diamond, 1991). Tangibility of assets (collateralised assets, such as, real estate, motor vehicles and equipments that could be pledged as surety) convey to investors the quality of the enterprise and tends to reduce the degree of asymmetric information and opacity (North, 1990) and increase external financing opportunities of large firms relative to small-sized firms.

There are differences in SME financing decisions with respect to different industry affiliations (clusters) and institutional environments in which enterprises operate (see Beck et al. 2002; Harris & Raviv, 1991 and Rajan et al. 2004). In the review of the capital structure financing literature, Harris & Raviv (1991) show empirically that enterprises in a given industry generally have identical leverage ratios which are relatively stable overtime, while debt/equity ratios across industries varies

From the review of literature, size matters for fish enterprises to access external finance. This is a robust finding across enterprise financing literature in developing countries. External finance bias against small enterprises justifying many governments in developing countries to intervene by establishing credit support programs targeted at artisanal fisheries to address their financing and expansion requirements.

#### **2.4.2.2 Enterprise Age**

Using the variable Age to analyse SME financing decisions along the life cycle is determined by the development of reputation, amount of available information, institutional capacity and tangibility. The positive or negative relationship between age and financial leverage depends on the quality of enterprise information and associated variables (Berger & Udell, 1998; Brewer et al. 1996). Capital structure changes can be non-linear to enterprise age (Brewer, 1996 and Robb, 2002), suggesting external financing of fish enterprises changes pattern along firm life cycle (see Figure 5.4).

The growth of SMEs from start-up through to maturity depends on various sources of internal and external finance. Small and young enterprises relatively suffer most from asymmetric information<sup>20</sup>, good reputation, credit history and incentive problems, thus constraining their access to external finance (see Berger & Udell, 1998, 2005; Carpenter & Petersen, 2002). Empirical analysis and hypothesis testing by Rocca et al. (2009, 2011) and Berger & Udell (1998) revealed that the level of asymmetric information is a key factor constraining enterprises' financial access at various stages of their life cycle, particularly at start-up. Young enterprises tend to show higher degrees of information opacity, greater

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<sup>20</sup> Costly monitoring, appraisal, adverse selection and moral hazard situations adversely affect small enterprises' access to formal financial credit

growth potentials and smaller size. They tend to have specific financial leverage drivers, such as, owners' equity and internal funds that are substituted for debt capital as they grow older and bigger in size (Rocca et al. 2009:3; Michaelas et al. 1999 and Myer, 1984).

The financial life cycle empirical analysis in Michaelas et al. (1999) and Rocca et al. (2011) argued that informal sources of finance open to small businesses, such as, entrepreneurs' personal funding and those of close families and friends are usually inadequate to finance start-ups and growth opportunities. The crucial role of debt capital at start-up phase and thereafter may be explained by the entrepreneurs' desire to finance enterprise growth and retain control of the business (see Berger & Udell, 1998; Hamilton & Fox, 1998)<sup>21</sup>. Berger & Udell (1998, 2006) argued that young enterprises may be externally financed by formal financial institutions as most of the financing may not be entirely external. In most cases, entrepreneurs would have to give personal wealth as guarantees for enterprise loan in case of default. Similarly, the study of Petersen & Rajan (1994) show that young enterprises rely heavily on entrepreneur and family financial support before resorting to formal financial debt. However, as the enterprise grows, a rational entrepreneur will tend to use internally generated funds instead of bank debt as financing source. These finances provide additional capital and thus reduce the amount of bank borrowing as the enterprise matures. Therefore, enterprises tend to adjust their financing requirements at maturity.

Robb (2002) empirically shows, contrary to Fluck et al. (1998); Michaelas et al. (1999) and Rocca et al. (2011) that young firms due to their growth potentials need external finance at early stages to support their expansion rather than at old age. Hence, leverage ratios decline

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<sup>21</sup> Small enterprises are largely owner-managed and they often prefer external loans than equity to avoid loss of ownership and control of the business as venture capital dilutes ownership and participation in corporate decisions.

with enterprise age as mature firms mainly rely on retained profits and venture capital (see Petersen & Rajan, 1994) as financing sources.

Rocca et al. (2009, 2011); Michaelas et al. (1999); Berger & Udell (1998); Myer (1984); Myer & Maljuf (1984) and Beck et al. (2006) have argued that enterprises follow a “pecking order” over time, commencing with the closest and cheapest sources – owners’ capital, family support and retained earnings, financing from banks based on entrepreneur pledges before resorting to more external sources. Despite an overwhelming attention to enterprise financing in developing countries, consensus on its capital structure financing during the course of life cycle is rather inconclusive, thus gap exist for more research.

#### **2.4.2.3 Enterprise Ownership**

The works of Beck et al. (2005, 2006) and Rocca et al. (2009, 2011) show that foreign-owned firms report less financing constraints than local firms due mainly to level of formality, attracting high skilled personnel, financial reporting, credit scoring, good reputation and convenient access to foreign finance (Demirguc-Kunt & Maksimovic, 1998). Most local firms being informationally opaque, inability to offer collateral and constraints of business environment do report higher financing obstacles than foreign businesses. The multinational corporations (MNCs) being large and having huge amount of collateral assets tend to report less financing constraints due to convenient access to international financial and capital markets relative to locally-owned small fish enterprises.

However, there is direct and indirect effect of foreign bank financing of SMEs. Enterprise survey suggests that businesses reported lower financing constraints in countries with high

presence of foreign banks (Clarke, Cull & Peria, 2006). Directly, foreign banks with the technical know-how can introduce new lending technologies and scale into the financial system that can impact favourably on fish SMEs financial access. Indirectly, by competing with local banks for large corporate clients, foreign banks can compete out domestic banks forcing the latter to go down market to bank SMEs (Beck, 2007). On the other hand with a high degree of information opacity in most developing countries like Uganda and The Gambia, suggests that foreign banks are less likely to lend to small and opaque companies relative to domestic banks. In effect, the positive effect of foreign bank entry into fish SME lending is likely to be indirect than direct due to high information asymmetric on SME operation in most LDCs.

#### **2.4.2.4 Enterprises Reputation**

Reputation argument by Rocca et al. (2009, 2011) supports the convenient access to debt capital mainly at the later stages of enterprise life. Young enterprises without the past experience and good track record of creditworthiness, tend to have low debt capacity, thus limited external financing. The reverse is true for mature enterprises that have consolidated businesses with the required track record, profitability and credibility in the market, tend to face lower financing constraints in the credit market and may obtain external finance under favourable economic terms. These enterprises have developed credible reputation in the credit market (see Diamond, 1989) unlike the start-ups with minimal loan repayment record and low proof of profitability that could be relied upon by external financiers. For such enterprises, internally generated funds and personal resources of the owner, friends or family support are crucial, only turning to external finance after building the required reputation.

As argued by Diamond (1989) and Thankor et al. (1992), enterprises that are able to acquire credibility and reliability in the credit market and thus, positive reputation, can easily access external finance including debt capital. They argued that as the enterprise matures, external financiers are able to examine its creditworthiness over time and they can now access external loans and trade credit conveniently as the problem of asymmetric information is eased. Fluck et al. (1998) have empirically shown that the share of entrepreneurs' funds increases at enterprise start-up, while the share of external financiers drops. However, this relationship reverses at some point explained by the development of a positive reputation in debt markets that enable the businesses to access external financing with ease.

Diamond (1991) has argued that large enterprises tend to have better reputation than small firms in the credit markets which allowed them to access conveniently more external debt. This is explained partly by the accumulation of collateralised assets in large enterprises (see Wijst & Thurik, 1993; Ang, 1992; North 1990) but also good reputation that reduces the degree of asymmetric information and opacity.

#### **2.4.2.5 Business Environment**

The growth and increasing access of SMEs to external finance depends largely on the business environment under which they operate. Beck et al. (2006) argues that the financial system that has an efficient investor protection, defined ownership rights and effective contract enforcement enhances enterprises' external financial access. The business environment that is also open and free to competition would enhance greater financial access to SMEs (see Berger & Udell, 1998, 20006). The reverse is true for an adverse business environment with restrictive policies on markets, interest rates and price caps (Djankov et al. 2007), would tend to discourage competition, promote inefficiencies in the

financial sector and undermine SMEs' financial access hence, slow down enterprise growth, also see Beck et al. (2003); Rocca et al. (2011); Fafchamps et al. (1994, 1995) and Klapper, Laeven & Rajan (2005) on anti-competitive regulation and inadequate physical and financial infrastructure and Sleuwaegen & Goedhuys (2002) on corruption and high taxes, regulatory burdens and bankruptcy process.

Zingales et al. (2004) among other researchers such as Petersen & Rajan (1994) and Rajan & Zingales (1995) have argued that the efficiency of the financial system and the overall institutional environment that influences SME growth also affects their capital financing. This is particularly relevant for enterprises that face opacity and severe asymmetric information.

Institutional mechanisms play an important role as it focus not much on information asymmetric but on the enabling institutions that enforce contracts. (North, 1990<sup>22</sup>) argued that in a country where legal institutions are effective in enforcing contracts; availability of credit is enhanced as collateral tend to substitute information asymmetric. Countries with developed financial sector coupled with "enabling institutions" that enforce contracts tend to have more credit available than the reverse. It is viewed that environments with assets that have collateral value and legal security of commercial loans, the credit market tends to flourish in such environments. Therefore, under conditions where legal systems are well defined, collateral adequate and its value not subject to price fluctuations, the collateral

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<sup>22</sup> Growth and development cannot take place in an institutional vacuum. The growth of markets and economic maturity require an institutional framework that allows transactions to take place and contracts protected by law and enforced. Institutional development need some guarantee of economic stability and certainty which can only be provided by good governance and sound economic policy making (North, 1990). The alternative to the lack of property right protection, law and order and political stability is economic anarchy and failed States.



ensures the contract is complied with (Stiglitz & Weiss, 1981; North, 1990 and Rocca et al. 2009). Accordingly, It is only when collateral is insufficient that information opacity becomes a concern for banks and other external financiers.

Using firm-level empirical data for 52 economies, Demirguc-Kunt et al. (2006) show that incorporated enterprises report lower constraints to financial access in countries with better developed financial institutions and an efficient legal systems, stronger ownership, greater creditor rights, lower regulatory burdens, efficient tax systems and effective bankruptcy processes. Incorporated businesses tend to exhibit lower financing obstacles than unincorporated enterprises and this advantage is higher in economies with better developed financial, institutional and conducive business environments (see Beck e al. 2003).

However, court and other legal sanctions to foreclose collateral may not be the only measure to enforce contracts. The promise of future business deals, reputational threats and the consciousness of cultivating honest commercial practices under which borrowing enterprises are obliged to comply with, are ways that could be less costly and effective to ensure repayment. The group lending approach in microfinance and the peer pressure (social capital) may also work well in some communities without the traditional collateral approach.

### **2.4.3 Lending Technology, Institutions and Microfinance**

This section focuses on lending technologies, institutions and microfinance as they influence financial access of fish SMEs in developing countries. The developments in financial and institutional capabilities ease financing difficulties on fish enterprises. Microfinance has been a financial intermediation targeting niche markets of small and

medium enterprises across industries in developing economies. Macro-economic stability, protection of creditor rights, availability of collateral assets, among others, relaxes fish SMEs formal financing constraints.

#### **2.4.3.1 SME Lending Technology**

Commercial banks' lending technologies are key determinants in the financial intermediation process. These technologies included transaction and relationship lending. Relationship lending technology uses 'soft' lending approach which involves bank-borrower relations than enterprise characteristics. Berger & Udell (1998, 2005, 2006) also referred to it as 'judgment lending' of a loan officer through continuous past direct contacts, personalised experience and information gathered over time. Soft information lending is important for all lending technologies, especially for small enterprises as it may serve as their principal source of lending due to their significant lack of 'hard' information requirements.

Transaction lending involves 'hard information' such as financial statement lending (audited financial statements), credit scoring (use of credit reference bureaus), fixed asset lending (real estate, motor vehicles and equipments use as collateral), feasibility studies (budgets and cash flow projections) and other asset-based lending, such as, factoring (valuation of accounts receivable and inventory pledged). Berger et al. (2005, 2006) argue that commercial banks mainly employ hard information lending technologies to get information on the potential borrower for appraisal and monitoring purposes. Therefore, SMEs facing severe information asymmetric and opaqueness have difficulties to access external debt from big and foreign-owned banks that rely more on impersonal financing,

objective, hard and more transparent information as a criterion for their lending decisions (see Berger & Udell, 1998, 2006, 2007; Torre et al. 2010; Moore, 1997; Cole et al. 2004).

Hard information required by external financiers in the form of financial statements, business plans, collateralised asset-based lending and credit scoring are difficult for SMEs to provide, or even if provided often lack detail, quality and rigor (Berger & Udell, 2005:1-3; Michaelas et al. 1999:116). Most fish small enterprises are often not registered with the authorities and do not keep proper record of transactions to facilitate effective appraisal and monitoring. Provision of collateral does relax information asymmetries but SMEs often find it difficult to meet this requirement (North, 1990 and Rocca et al. 2009:12). In this regard, external financiers have a choice of limiting their financing to vulnerable SMEs to control the incidence of non-performing loans. Most external financiers adopt a cautious approach to finance SMEs to either reduce the amount of financing sought, ration or deny access altogether. The problems of SME financing is more acute in developing countries associated with high risk profile with volatile rates of return and high incidences of failure (Storey, 1994). This is further compounded by volatile business environment, security of transactions and property rights protection problems (see Djankov et al. 2007:299-305 and Fafchamps et al. 1994, 1995:1-5) putting severe constraints on enterprises' access to external financial debt. Figure 2.4 shows the detailed lending technology employed by financial institutions using the 'soft' and 'hard' information in SME financing.

It is argued that domestic private enterprises and small banks are better suited to finance SMEs as they engage in relationship lending based on 'soft information' (see Berger et al. 1995, 2011; Berger & Udell, 1998 and Beck et al. 2010). However, despite difficulties to meet 'hard' information requirements, SME market contrary to common perception is being

served by wide range of banks with different lending technologies (see Berger & Udell 1998) not only smaller banks with relationship-based models. The works of Stein (2002) and Mian (2006) found that a more centralised and hierarchical organisational structure may impact negatively on lending to informationally opaque SMEs as they tend to rely heavily on hard information. As one goes down vertically in Figure 2.4, there is less SME lending as more emphasis is laid on collateralised assets and other hard information requirements.

However, there has not been consensus in this area, as some recent studies of Beck et al. (2010)<sup>23</sup> using large survey database on 91 large banks from 45 countries empirically countered this conclusion and argued for a new paradigm in SME financing that big and foreign-owned banks can be effective in SME financing using hard information technologies such as automated credit reference and other statistical models as timely and reliable financial information can be provided on SMEs (also see Berger & Udell, 2006; Torre et al. 2010 and Warner, 2002) .

Moore (1997) and Cade (1997) argued that there are gains in sharing large ‘pool’ data to undertake historical analysis using credit scoring and other sophisticated credit tools in financing decisions of SMEs (also see Beck, Demirguc-Kunt & Martinez, 2008). The banks’ credit reference bureau data helps to create pooled risk credit scores.

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<sup>23</sup> Beck T, Demirguc-kunt, Soledad Martinez (2010) Banking Financing for SMES; Evidence Across Countries and Bank Ownership Types, World Bank, Washington D.C

G r e a t e r  C o l l a t e r a l  U s e	Technology	Information Source	Screening and Underwriting policies	Contract Structure	Monitoring & Mechanism
	<b>Relationship lending</b>	Soft information on entrepreneur gathered over time	Based on SME's score in a statistical model	Variety of structures	Continued observation of firm performance
	<b>Small business credit scoring</b>	Hard information about enterprise	Based on SME's score in a statistical model	No collateral required, higher interest rates	Observe timely repayments
	<b>Financial statement lending</b>	Audited financial statements	Based on strength and creditability of financial ratios	Contracts vary future cash flows source of payment	On-going review of financial statements
	<b>Factoring</b>	Value of collateral-accounts receivable	Based on the quality of enterprise's clients	Factor buys receivables, takes over credit and collections	Lender owns the accounts receivables
	<b>Asset-based lending</b>	Value of collateral-accounts receivable	Based on value of collateral	Primary method of repayment is asset collateral	Value of asset must be regularly updated
	<b>Leasing</b>	Value of asset leased	Based on value of the asset	Lessor buys asset and rent to borrower	Observe timely repayments
	<b>Fixed asset lending</b>	Value of collateral, real estate, equipment	Based on assessed market value of asset and SMEs ability to service debt	Collateral worth over 100% of loan	Observe timely repayments

**Figure 2.4 SME Lending Technologies**

Source: Adapted from Berger & Udell (2006: 2956)

There are also private credit reference bureaus that analyse the pool data and provide credit scores for banks to assist in their credit decisions. In the developed economies, private credit rating agencies do provide credit scores to financial institutions lacking the database of their own to assist in their credit risk management, such as, the Small Business Scoring Systems (SBSS) in the USA (Cade, 1997). The crucial aspect of credit risk management has to do with pricing lending decisions that reflect the risk it holds. Accordingly, Coffman (2001) argues that modern technology and other applications such as credit scoring systems enables commercial banks to significantly improve their loan pricing to better reflect the risk profile.

Notwithstanding, hard information through credit scoring has its own shortcomings as forecasting is based on the analysis of the historical performance which can be misleading in many cases example before recession. It may also discriminate groups such as minorities, small enterprises and women who may not fit into high risk bracket. The automated credit scoring is an impersonal tool that to a large extent reduces the personal relationship between small fish enterprises and commercial banks, thus does not recognise the relationships and interactions between the two which may not enhance extensive SME financing.

It follows that profitable enterprises with limited credit histories and sparse financial information would find it difficult to access external debt under rigid credit scoring models. For commercial banks relying on a single rigid credit scoring model may lose significant information on the businesses. Jennings (2001) survey found that small entrepreneurs prefer to know the local banker and personalised services are valued than to rely solely on credit scoring with its limitations. Therefore, the challenge for financial institutions may be to engage the SME sector by merging the two approaches, - using credit scoring technology to reduce costs of verification while at the same time developing personalised services. Stoneman (1998) argued for a need to maintain a balance by segmenting the market with small enterprises having “high touch” relationship lending for the profitable customers while reserving less profitable enterprises with automated credit scoring channels.

Efficiency and timesaving gains through the use of appropriate new information technologies in credit administration is considerable. Banks have over the years been at the forefront in successfully applying latest lending technologies to enhance efficient operations in a variety of banking products for SMEs (see Jennings, 2001; Recupero, 2002;

Stoneman, 1998). However, Jennings (2001) and Stoneman (1998) argue that an important key area banks recorded less progress is the standardisation of financial products tailored to meet the financing requirements of SMEs, although at present, developments in innovative lending technologies have accelerated to address enterprises financing needs.

Timely credit decisions and delivery, according to Rhyne (2000); Robinson (2001); Recupero (2002) and Jaabi (2004) are key important factors for enterprises as greater business opportunities, such as, lucrative projects and growth opportunities could be lost with untimely loans. The bureaucratic delays and administrative procedures in the credit decision-making are key important factors that frustrate SMEs from seeking external bank debt (Tarinyeba, 2009). The delays in the approval processes and loan disbursements are a burden which usually leads SMEs to change banks or opt for loans in informal sector even at relatively higher interest rates. For these reasons, most SMEs viewed the speed of accessing external debt as key than cost of capital (Tarinyeba, 2009) as a determining factor.

It is noted that a well-functioning financial system is necessary in enhancing SMEs' formal financial access. Increasing SMEs' access to external debt requires financial intermediaries to provide efficient credit programs that are tailored to meet the needs of small and medium enterprises. In the developed world, financial intermediaries have established number of strategic approaches that have made SME financing profitable but these need to be blended with relationship lending to maximise large scale lending to SMEs in developing countries. The approaches to institutional and financial developments may require a long-term solution but innovative lending technologies in the interim will hold promise in easing SMEs' financing constraints (see Beck et al. 2006; Nelson, 2008; Stoneman, 1998).

#### **2.4.3.2 Institutional Developments**

As argued by Rajan & Zingales (1995) and Zingales et al. (2004), SMEs operation continues to be faced with varying obstacles based on the countries' institutional and financial development. The study of Beck (2006) argues that institutional development is an important country characteristic that explains enterprises financing constraints. Enterprises are said to report lower financing constraints in countries with greater developed institutions relative to countries with less developed institutions. Accordingly, Sleuwaegen & Goedhuys (2002) argues that small enterprises grow faster in the developed German economy than in LDC of Ivory Coast due mainly to country-level institutional and financial development. In both the developed and developing world, small enterprises are found to face constraints in accessing external debt severely affecting their operations and growth (see Rocca et al. 2009; Berger & Udell, 1998 and Beck et al. 2006) but worsen in countries with weak institutional developments.

Demirguc-kunt et al. (1998); Rajan & Zingales (1995) and Chittenden et al. (1996) have shown differences in firms' capital structure financing. Institutional efficiency can reduce firm information asymmetric and enhance their external debt financing. Levine (1997) and Guiso et al. (2004) examined institutional environments on cross-country studies and concluded that enhanced institutional capacities increases enterprise financing decisions. Beck et al. (2008) and Guiso et al. (2004) noted that the higher number of banks irrespective of ownership type in developing countries does require collateral<sup>24</sup> in their lending decisions due to weaker informational and institutional environment. With an environment of shallow, inefficient and highly volatile financial sector, bank lending is

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<sup>24</sup> In their survey of 91 banks in 45 countries, 100% of government banks request collateral for medium and large enterprises and about 90% of foreign-owned and domestic private banks require similar fashion.



expected to contract. On the contrary, SME financing may be enhanced with competition, buoyant financial sector and the eradication of restricted policies such as interest rate ceilings and forced sectoral lending (Guiso et al. 2004). This is robust in fish SME financing in Uganda and The Gambia, however, collaborative approach in the former avail financial resources to the industry.

However, Demirguc-kunt et al. (1998, 1999) argue that differences in financial development are accompanied by differences in credit protection. Credit protection and judicial enforcement of collaterals affect availability of formal finance to enterprises due to risk of non-payments. Rocca et al. (2009, 2011) model show credit constraints in regions characterised as poorly developed and an inefficient institutional context relative to other regions with better developed financial sector that can readily grant credit to enterprises - Southern and Northern Italy respectively. The region with poor institutional environment reflect a negative influence on inefficient enterprises' access to bank credit especially young enterprises that are largely in need of formal external finance for growth. This is particularly the case in countries with undeveloped and inefficient financial markets (see Giannetti, 2003).

A sustainable and well-functioning mechanism for SME financing requires institutional building and a market approach that has the potential of providing financial services to SMEs at lower costs and minimise risk exposure (Cade, 1997). It is only through the commercial mechanism that financial intermediaries will find SME financing more viable, thus be encouraged to provide sustainable lending programs. There are also other market trends that put pressure on financial intermediaries to recognise SME markets as viable options. It is argued that trends of globalisation have increased competition with adverse

effects on profit margins and fee incomes. Financial institutions have become under pressure now than ever before to strategise ways of lending to SMEs not only for survival but to increase their market share.

With an increasing liquidity of security markets in many economies, most multinational corporations are now having direct access to such capital markets instead of seeking commercial bank finance. Banks and other financial service providers have become under increasing pressure to expand their businesses towards SMEs and strategise innovative lending mechanisms against inherent risks to improve the profitability in lending to SMEs (Beck et al. 2006 and Ricupero, 2002) . However, the level of institutional capacities in developed and developing countries differ significantly. Nonetheless, the problems of small enterprise financing are more or less the same in terms of high risk profile, constraints of information opacity and high transaction costs. The recent innovations of credit scoring and other hard information requirements in developed economies to enhance SMEs' access to credit may provide valuable lessons for banks in the developing world to become more SME-oriented and increase the quality financial services to this vital fishery industry.

#### **2.4.3.3 Legal Institutions**

Demirguc-Kunt et al. (1998), among other researchers, used enterprise data to show the important role of the financial, institutional development and effective legal enforcement in enhancing enterprises' access to external financing. Other studies including Rajan & Zingales (1998) have proved that enterprises that depend on external debt grow faster in economies with greater developed institutional and financial systems. The study of Beck, Demirguc-Kunt & Maksimovic (2005) and Ayyagari, Demirgüç-Kunt & Maksimovic

(2005) focused on the broader business environment of enterprise operation and further examined the features of the enabling legal environment that directly constrain enterprise finance.

Ayyagari et al. (2005) used the World Business Environment Survey (WBES) data in 2000 in 80 developing and developed economies globally. The empirical findings reported among the lot of independent variables that crime, finance and political instability emerge as binding constraints<sup>25</sup> with a direct effect on enterprise financing and growth. The authors also used the Directed Acyclic Graph (DAG) methodology and correlation matrix to assess the set of variables that have direct and indirect causes on other variables. Using DAG algorithm, Ayyagari et al. (2005) found crime, political instability and finance as binding constraints among host of variables, with other constraining independent variables having an indirect impact<sup>26</sup> on enterprise finance and growth. In the same vein, further robust tests proved that financial obstacle is the most binding constraint particularly in LDCs where business environment is severe. The regression finding of the study also shows that financing obstacles have the largest direct effect on enterprise finance and growth.

Different factors vary in importance relative to enterprise characteristics (Ayyagari et al. 2005) as though larger enterprises may face lesser financing constraints but will not escape from other variables such as political instability and crime, particularly in low-income countries. The features in the business environment found to be obstacles to enterprise financing and growth are broadly categorised into the following:

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<sup>25</sup> Binding constrain defined as having a significant impact on enterprise financing and growth

<sup>26</sup> Ayyagari et al. (2005) found anti-competition, infrastructure, taxes and regulations, judicial efficiencies, corruption, inflation and exchange rates having an indirect impact on enterprise finance and growth.

- i. General macroeconomic condition that impacts negatively on enterprise financing - inflation, political instability and exchange rate instability
- ii. Financing (constraints of access and rising cost of capital),
- iii. Judicial effectiveness - security, property rights protection, efficient functioning of the judiciary, (Porta et al. 1998),
- iv. Tax, regulatory framework and anti-competitive practices,
- v. Infrastructure - availability and quality of roads, water, electricity, telephone, postal services, technologies and skills
- vi. Corruption and crime – (Sleuwaegen & Goedhuys, 2002)

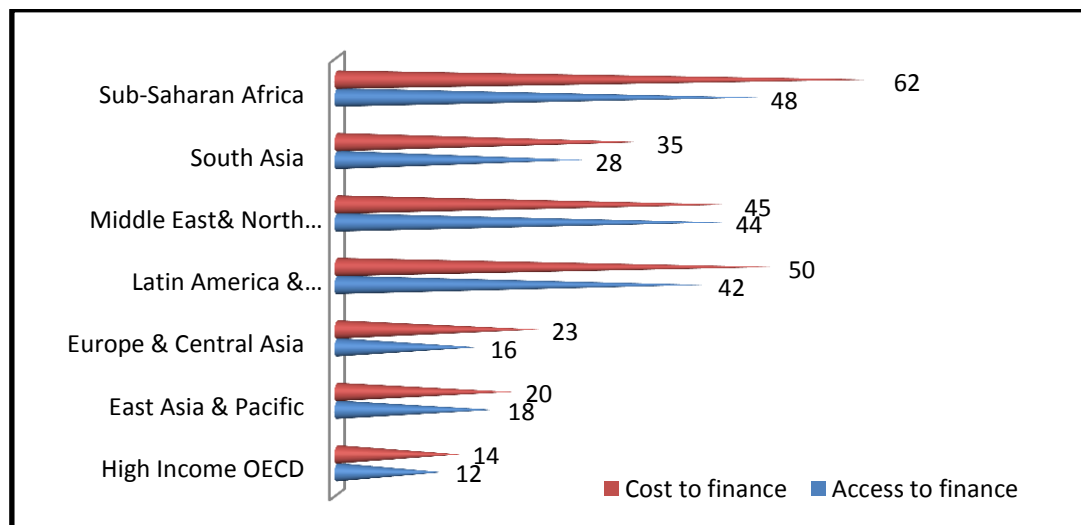
Significant literature on enterprise finance has stressed the importance of financing and judicial efficiency. It is argued that the variation across countries in enterprises' performance and financial policies is explained by the differences in legal and financial systems. The study by Klapper et al. (2005) focused on the importance of regulation and infrastructure. They show that entry barriers of anti-competitive regulation led to retarded enterprise growth in Western and Eastern Europe. Dollar et al. (2004) using empirical data also argued that the cost of various bottlenecks, such as, days to clear goods from customs, days to connect a phone line, and sales lost due to power shortages affect enterprise performance in Burkina Faso, Bangladesh, India and Pakistan.

Using similar data for African countries, Gelb & Ramachandran (2007) show that inadequate physical and financial infrastructure also affect firm financing and performance. Sleuwaegen & Goedhuys (2002) using enterprise survey data from the Ivory Coast show that corruption and higher taxes have adverse impact on enterprise productivity and have the tendency of impairing financing and growth prospects of enterprises. Similarly, Fisman & Svensson (2004) using Ugandan enterprise data found that corruption through bribery

payments, retard enterprise growth more than taxation while Gaviria (2002) empirically found that corruption and crime considerably affect enterprise competitiveness among Latin American businesses .

Beck et al. (2008) maintained that crime control, political stability and financial sector reforms tend to relax financing obstacles and are effective measures in promoting enterprise financial access and growth (also see Ayyagari et al. 2005). These studies found that the financial constraints impact on enterprise performance and growth is most robust in an environment of civil strife, crime and political instability particularly in developing SSA where they exhibit major constraints to enterprise financing and growth.

The findings of Atieno (2001) on African small enterprises show that most enterprises do not use formal bank credit due to lack of information about credit and other stringent conditions such as collateral. The broader study of Bigsten et al. (2003) on the demand and access to credit by enterprises in selected African countries including Kenya, Ghana, Burundi, Cameroon, Cote D'Ivoire and Zimbabwe found that large enterprises dominate the credit market and that the majority of bank loans were collateralised with high values of collateral, almost twice of loan amount. On average, the results show that over three-fifth of the enterprises did not use bank credit; trade credit was widely preferred by enterprises. The findings suggest that increasing use of trade credit resulted to limited use of formal credit due to high cost and access to finance difficulties as shown in Figure 2.5.



**Figure 2.5: Enterprises Reporting Access and Cost of Finance as an Obstacle**

Source: Beck, Demirguc-Kunt & Maksimovic (2008)

Sub-Saharan Africa recorded highest cost and access to finance obstacles at 62 percent and 48 percent respectively followed by Latin America, Middle East and North Africa. High Income countries reported the lowest 12 and 14 percent for cost and access to finance respectively in 2006. This has to a large extent increase cost of borrowing in SSA forcing small businesses to turn to trade credit and other informal financing sources in line with the arguments of Bigsten et al. (2003).

Other studies on credit markets in Africa, such as Mead & Liedholm (1998); Daniels (1994); Fafchamps et al. (1994, 1995); Djankov et al. (2007); Mead et al. (1995); Beck (2007); McPherson (1991); Fatoki & Smit (2011) established that African enterprises face severe constraints in accessing formal credit due to firm internal and external factors, such as, poor lending infrastructure, quality of business information, business environment, weak firm level capabilities, lack of proper records, collateral, state variables of regulatory and macroeconomic environments. As a result, small firms rely on trade credit as a financing option. Djankov et al. (2007) and Fafchamps et al. (1994, 1995) argue that the increasing

use of alternative forms of credit such as the informal trade credit does not translate into lack of demand for formal credit but rather manifest the difficulties in accessing it.

In a similar study of credit enforcement in 88 countries, Djankov et al. (2007) found variations in the efficiency of enforcement procedures with higher income countries having more efficient systems than low-income countries; hence access to credit would be higher in the developed world than LDCs (also see Jappelli, Pagano & Bianco, 2001 and Porta, 1997). It can be argued that different credit enforcement systems may be appropriate for different countries in the light of variations.

Jappelli et al. (2001) study made use of a model to illustrate the impact of judicial inefficiency on the performance of credit markets. The results show that poor judicial enforcement enhances moral hazard (see Fafchamps et al. 1994 on Kenya), increases borrowers' non-compliance and rising cost of credit due to high fees and interest charges. Thus, the key function of the courts in enforcing debt payments is to get borrowers to honour their obligations in financial credit contracts.

In the absence of efficient, reliable and effective legal enforcement in credit contracts, banks will either opt to withhold credit or adopt strict risk management measures such as high interest and fee charges or lend only to reputable borrowers in the credit market. The adoption of these credit mitigating mechanisms tend to restrict SMEs and fish SMEs in particular, access to formal external credit and further impact adversely on their performance and contributions to the economy.

#### **2.4.3.4 Microfinance**

The contemporary model of microfinance has its origin from Bangladesh in the early 1970s pioneered by the 2006 Nobel Peace Prize co-recipient Professor Muhammed Yunus. Microfinance is instrumental in supporting small informal microenterprises and providing avenues for self-employment to help resolve increasing poverty and by the 1990s; microfinance has become the international development community's highest-profile and most funded poverty alleviation policy. Some development economists have alleged that the 'new world of microfinance has the potential in finance as the green revolution in agriculture – providing financial access on a considerable scale to micro, small and medium-sized enterprises' (Otero & Rhyne, 1994:3). However, due to most microfinance organisations being NGOs, they are constrained by funding and governance problems to reach out and meet financing requirements of SMEs adequately. The financing gap (as shown in Figure 1.1) remains high for SMEs to access sustainable external financial credit to support enterprise growth and development.

#### **Definition of Microfinance**

There is no rigid definition of what constitutes microfinance as it varies widely among institutions, countries and regions. We adopted the World Bank (1996:2) definition of microfinance as 'consisting of organisations and agents that are engaged in relatively small financial transactions using specialised, character-based methodologies to serve the low-income households, micro, small and medium-sized enterprises, small farmers and others who often lack access to the formal banking system'. It is the term generally used for the provision of financial services to a large number of micro, small and medium-sized enterprises in a cost effective and sustainable manner.



The concept has gained recognition as a tool for reducing poverty among large and diverse groups. Microfinance service providers may be formal financial intermediaries, semi-formal or informal institutions. Institutions engaged in these services range from NGOs, rotating savings and credit organisations (ROSCAs), credit unions, cooperatives, rural banks, commercial banks and other specialised financial institutions such as the development financial institutions (DFIs). The micro-economy is the primary market of microfinance institutions (MFIs) and includes such population segments as micro-enterprises, small farmers, landless and other low income people, among them women who are frequently and particularly disadvantaged in accessing formal external financial (Itsede, 2002).

Microfinancing as financial intermediation came into prominence globally to fill the credit gap in financing micro, small and medium enterprises after decades of formal banking sector failure to address their financing requirements. Lending methodology under group lending approach championed by Professor Muhammed Yunus (founder and former Managing Director of Grameen Bank) is mainly through loans made to individuals and enterprises with the group held jointly liable in cases of loan default. "In addition to repaying individual share of the loan, each member of the group must accept to pay the obligations of their defaulting members to avoid the entire group ineligible for future financing" (Aghion & Gollier, 2000: 632; Yunus, 2006). Within the group lending system, peer support and pressure are crucial in ensuring full repayment. Chan (1997) cited that the system of social collateral forms a concerted control mechanism making it possible for vulnerable, rural and urban borrowers have access to scarce resources who otherwise may go without it.

To address loan defaults, several studies found that group loans under joint liability reduces moral hazard problems. In analysing peer monitoring, Stiglitz (1990) argues that the obligation to pay loans for defaulting members under joint liability increase borrowers risks and costs. However, such obligation creates an incentive for intra-group monitoring as increased monitoring slows down the default probabilities and improves clients' welfare (Stiglitz 1990:80). Aghion & Morduch (2000: 410) argue that the high repayment rates in Self-Help Groups (SHG) lending cannot be solely associated with the effect of joint liability but may be explained by other factors inherent in the lending technology such as training, client education, group participation in the credit markets and transparent public repayments<sup>27</sup>.

Despite the successes of Grameen Bank in Bangladesh, its lending model replication in more than 132 countries (Shakya & Rankins, 2008) including India, Pakistan and Malaysia, among others; has not been encouraging with increasing rate of farmers' suicide in Andhra Pradesh, India (Chan et al. 2011; Mortana, 2011) due to excessive debt exposure. Some NGOs charge prohibitive interest rates and indulging in oppressive loan recovery practices, (Shylendra, 2006) while other unscrupulous NGO intermediaries in Benin Republic were employing irresponsible credit delivery and an aggressive recovery (IRIN, 2009)<sup>28</sup>. The case of Initial Public Offering (IPO) of Banco Compartamos<sup>29</sup> – the largest microfinance bank in Mexico revealed unethical behaviour of considerable profiteering by senior

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<sup>27</sup> Repayment of group loans is usually done in public at periodic weekly or monthly meetings so any defaults becomes public knowledge to all members of the groups. The threat of social stigma put further pressures on borrowers to repay loans.

<sup>28</sup> Integrated Regional Information Network in Africa

<sup>29</sup> Compartamos charging 195% interest on microloan created much public outcry for enriching its senior managers and shareholders than reducing poverty of its clients and the general criticism of commercial microfinance

managers with no evidence of positive effect on poverty reduction among its poor clients (Bateman, Sinkovic & Skare, 2012: 5)

However, lately microfinance once-globally praised mechanism for poverty alleviation has come under intense criticism. The high cost of fees and interest charges have driven most communities into huge indebtedness and the local district authorities in Andhra Pradesh blamed MFIs for increasing farmers' suicides that occurred as a result of non-payment of their debts. While some politically connected persons and cronies would consider public sector credit as political dividends, some governments in the past have written-off small farmers' loans to solicit votes in election years causing external financiers to experience considerable non-performing loans (NPLs). This is most notable in the Southern Indian state of Andhra Pradesh<sup>30</sup>, where loan repayment rates fell from almost 100 percent to a mere 20 percent<sup>31</sup> (see Mortana, 2011)<sup>32</sup> and also of Bosnia (Bateman et al, 2011), NGOs in Benin and Banco Compartamos in Mexico.

In the same vein, many researchers (Chan, 2011; Goetz et al. 1996; Hulme & Mosley, 1996; Bateman & Chang, 2012) have expressed concerns with the group lending approach adopted by Grameen Bank as credit may disempower borrowers leading to excessive debts and rising tensions at family level. It is reported that borrowers were forced to eat less to meet loan payments, experience indignity of losing their collateralised assets in default

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<sup>30</sup> Andhra Pradesh has a population of about 80 million people accounting for one third of India's microfinance loans, having a considerable effect on the lives of its people

<sup>31</sup> Nicaragua, Morocco, Bosnia and Bolivia have also faced similar negative effects of microfinance with politicians encouraging non-payment of government backed loans in exchange for grass-root political support. Similar problems also happened in some SSA countries notably The Gambia, Senegal, Uganda, Kenya, among others.

<sup>32</sup> Mortana, (2011) Microfinance Isn't a Magic Bullet, available on <http://www.globalenvision.org/topics/governance>

cases, loss of confidence and sleep less worrying about their next installment payments (Goetz & Gupta, 1996). Copestake (2002:752) also found out that some micro and small entrepreneurs become worst-off after taking microfinance loans than before (Hulme & Mosley, 1996, 1998:787). Group lending continues to be criticised due to its high cost of implementation, replication, difficulties in reaching large number of borrowers and its programs are often unsustainable due to continuous dependence on subsidies (Bhatt & Tang, 2001; Robinson, 2001; Ledgerwood, 2002; Christen, 2008).

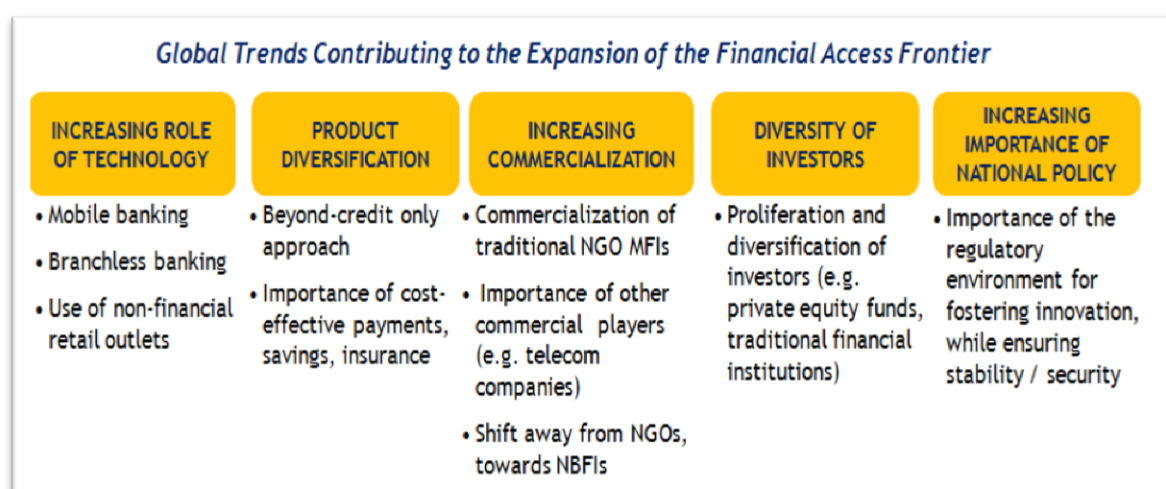
Advocates of financial system approach, such as Robinson (2001); Rhyne & White (2000); Ledgerwood (2002) and Hulme & Mosley (1996, 1998:783-790) have been critical of Grameen Bank's lending technologies. They argued that NGO subsidy dependent approach requires a huge amount of continuing subsidies to sustain it and has not proof to be a global affordable model. Much reliance on donor and government funds has not been sustainable as growth prospects become limited and wind-up if such funds dry out. Accordingly, even if the long-term continuance of these subsidies is assured, these assumptions do not match very well with the real world (Robinson, 2001; Rhyne et al. 2000). The probable irreversible trend of banks in financing small and medium enterprises may be due to significant unmet demand of this sector (Robinson, 2001; Ledgerwood, 2000 and Khandler, 1998) and the fact that it has been proven that this massive unmet demand on a global scale can be met profitably through financial system approach able to cover intermediation costs and remain self-sufficient.

Despite its attempts to fill the credit gap, microfinance is not a magic wand (Hulme & Mosley, 1996, 1998; Robinson, 2001; Rhyne & White, 2000; Montana, 2011), like all financial institutions it is wrought with the ups and downs of the market. Lending system could be dangerous especially when enterprises are allowed to borrow irresponsibly, seen

as the build-up of both the Southeast Asian financial crisis of 1997/8 and global financial crisis of 2008 (see Corsetti et al. 1999; King, 2001; Rao, 1998 and Crafts, 1999 on Asian crisis and Reinhart & Rogoff, 2008, 2009; Lall, Cardarelli & Elekdag, 2008; Krugman, 1990 and Hong, lee & Tang, 2010 on global financial crisis). Several studies including Mortana (2011); Robinson (2001); Rhyne & White (2000) and Rhyne (2011) have argued that microfinance does work with responsible lending and provision of broader range of financial products and services, including not just credit but also savings, remittances, insurance, leasing and factoring. It is not a magic bullet to address poverty immediately, nor is it intrinsically harmful.

#### 2.4.4 Expansion of SMEs Financial Access

Figure 2.6 shows the key factors in lending technologies, infrastructural and other enabling environment that have great potentials of relaxing financing obstacles. The high presence of these factors in the economy tends to relax fish SMEs financing constraints (Beck et al. 2008), explaining why enterprises in middle and high-income economies report lower financial access constraints relative to low-income countries.



**Figure 2.6: Expansion of SMEs Financial Access Frontier**

Source: Beck, Demirgüç-Kunt & Honohan. (2008)

In line with Beck et al. (2008) study, the global efforts in addressing the historical financial obstacles facing SMEs can be linked to Professor Michael Porter's (1990) "Collaborative Diamond Model", arguing for joint effort from multiple stakeholders - industry, national governments, meso-organisations and international development agencies to resolve SMEs' acute financing difficulties. The model underscore the significant role of institutions within the industry, crucial leading role of governments, supportive meso-organisations (policy, universities and research centres) and international development partners in addressing financial needs of SMEs and fish SMEs in particular. This is also supported by the findings of North (1990); Beck et al. (2003); Ayyagari et al. (2005) and Demircuc-Kunt et al. (2008) who argue that improvements in business and institutional environments, conducive macroeconomic policies and infrastructural support matter in driving SME financial access.

The importance of national government initiatives in improving the state of financial access by guaranteeing agricultural credits in Nigeria (Ojo, 1999 and Itsede, 2006), Chilean and Mexican guarantee funds (Torres et al, 2008), Colombia's national guarantee funds (Schmukler, 2007), stakeholders response to fish export crisis in Uganda (Kiggundu, 2005, 2006) and the establishment of SME bank in Malaysia (Rasiah, 2011) have boosted SME financial access, growth and surged up their contributions to the economies in the respective countries.

#### **2.4.5 Industry Competitiveness and Performance**

The section reviews technological capabilities in the fish industry as it enhances enterprise performance and global competitiveness. Systemic quad of Rasiah (2007) and domestic firm and national technological capabilities of Lall (1992, 2005); Lundvall, (1988) and Kim (1997) argued that economies with enhanced four systemic pillars and developed

technological capabilities stand to benefit from increased economic growth, exports, value addition and employment.

#### **2.4.5.1 Systemic Quad**

Systemic Quad <sup>33</sup> looks at the surrounding factors of industry integration and competitiveness in the global market. It considers four systemic pillars comprising of network cohesion, environment, role of national governments and global connectivity required to participate and compete in international markets. The public-private partnerships are considered vital in the development of dynamic industry pillars of the systemic quad capable of resolving collective action problems as shown in Uganda case. Combination of inefficiencies at firm level, the lack of requisite human resources and technological capabilities necessary to stimulate the institutional innovative capacities have to a greater extent undermine the capacity of industries, fishing in particular to enjoy increase production, sustainable export growth and division of labour. These are also the prime reasons for the stagnation that has characterised export processing zones across developing countries (Rasiah, 2011). It is argued that central to any effort to revive stagnating conditions must focus on planting the four systemic pillars to stimulate, upgrade, innovate and establish new enterprises to turn-around the industry to vibrancy.

Rasiah, (2007:211) argued that to participate in global trade and remain competitive, requires conducive environment (macroeconomic stability and greater financial inclusion), network cohesion, role of national governments and global connectivity. The absence of

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<sup>33</sup> Systemic Quad is developed by Rasiah (2007) focusing on developing countries as Michael Porter 1990 ‘Collaborative Diamond Model’ is relevant for mature industries.

these four pillars has adversely undermined the sustainable increase in fish production and export growth.

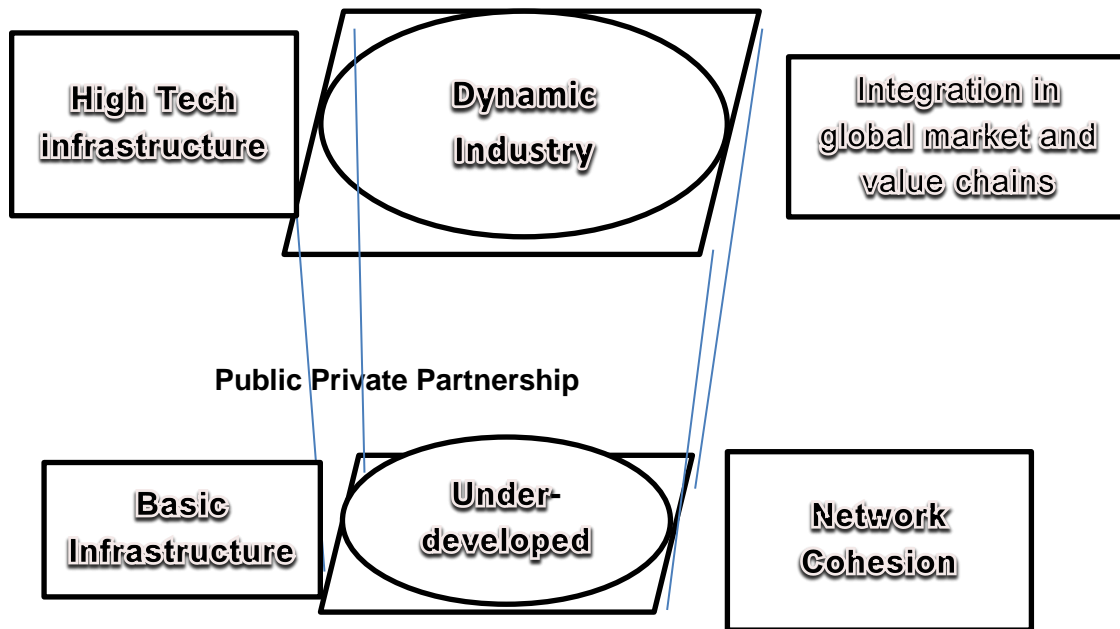


Figure 2.7 Systemic Quad

Source: Rasiah (2007: 212)

Economies that manage to strengthen the four pillars of systemic quad are able to sustain rapid growth, increase employment, value addition and sustained exports as experience in Japan, Taiwan, Singapore and other Southeast Asian countries (Rasiah, 2007). On the other hand, economies that are only able to provide basic infrastructure, security and political stability in industrial estates have failed to sustained growth, add value, and job creation. With the sustained value addition differentiation, division of labour and wage increases have helped raise standard of living and human development sharply in successful countries, the lack of it has denied the less successful ones similar experience.

As shown in Figure 2.7, there are four systemic pillars in Rasiah (2007) model comprising of basic infrastructure (role of government), high technology (environment), global



integration and network cohesion. The detail review of each pillar follows in the next section.

**i. Basic Infrastructure**

The first pillar of dynamic industry is the key role of government in providing stability (macroeconomic, political and security) and an efficient infrastructure. It is government's role to provide better transportation access, financial infrastructure, reliable telecommunication network, safe and sufficient running water, affordable energy supply and other public sector support services, such as, accessible health facilities. This will allow private sector enterprises to focus on their operations in most effective and efficient ways.

**ii. High Technological Infrastructure**

The second pillar is the environment where the institutions coordinating learning and innovation have evolve effectively to stimulate technological acquisition through learning by doing, licensing, training, adaptation and a strong intellectual property right framework to protect the rights of innovators and researchers. The high technology infrastructure refers to the existence of higher institutions of learning for science and technology, R&D institutes, research laboratories, testing facilities, availability of skilled work force, technical training programs and R&D expenditure within the country. These are crucial in developing economies to develop domestic technological capabilities (Lall, 1992).

In most developing economies, the responsibility of developing technological infrastructure rests primarily with the government. The contribution of private sector is very minimal (Hill, 1995; Lynn, 1985). The reasons are that private sector are limited with available resources and with the prime motive of seeking returns on investments, they are less motivated in providing public goods.

### **iii. Global Integration**

The third pillar is to be globally connected with markets and value chains. Global markets provide the economies of scale and the competitive pressure to innovate and enhance systems. On the other hand, global value chains help economic agents to orientate their strategies to the critical dynamics that determine upgrading and value addition (Gerrefi, 2002).

### **iv. Network Cohesion**

The fourth pillar calls for encouraging interdependence and interaction among actors in the industry. Lundvall (1988) expanded the elements of interdependence and interactiveness by emphasising the role of producer-user relations. The nature of the interface and coordination between vertically connected economic agents is vital in the horizontal evolutions of innovation activities, making connectivity and coordination critical in knowledge flows. Intermediary organisations, such as, industry associations, government coordination councils and chambers of commerce play an important role in promoting connectivity and coordination in the industry.

#### **2.4.5.2 Technological Capabilities**

Technology has two primary components, (i) physical components, such as, equipments, products, tools, technologies and processes and (ii) an informational components like know-how in management, marketing, production, quality control and skilled labour (Bell & Pavit, 1995).

## **Definition of Technological capability**

Technological capability is defined as a process of accumulating knowledge or a process of organisational learning (Rosenberg & Firshtak, 1985). Kim (1997) defined technological capabilities as the ability to use technological knowledge efficiently to assimilate, use, adapt and change existing technologies and also the ability to create new technologies and develop new products and processes. The literature argues that firms are technologically not mature, they learn overtime, accumulate knowledge and are able to progressively carry out new activities and acquire new technological capabilities (Dutrenit, 2005). The technological development is gradual at firms and national levels, stages of technological capability accumulation can be identified. Technological capabilities enable enterprises to undertake range of productive tasks from pre-investment analysis to product and process engineering, manufacturing and the introduction of new technologies.

Technologies can be acquired through transfers from multinational corporations (MNCs) to local firms, internal transfers through FDI, external transfers through licensing agreements, capital goods imports, local adaptation and development, contracts and consultants, formal R&D, harnessing the diaspora skills and other key dissemination channels, like technology parks and clusters (Chandra et al. 2006:39-44).

Much of the traditional theoretical and empirical literature concentrated mainly on developed and emerging economies neglecting the need for developing countries to build technological capabilities. As Lall (1992:165) put it, ‘‘technology is not freely available to all countries as viewed by neoclassical trade theory and that technological knowledge is not equally shared among enterprises’’. Instead, firms and countries select appropriate levels of capital/labour intensity in accordance to factor price ratios and their relative endowments of

physical capital and labour. Accordingly, in developing SSA countries, despite trade liberalisations in the 1980s, the region failed to exploit the opportunities offered by global trade due largely to low domestic firm capabilities and weak public sector support (Lall, 1992, 2001; Rasiah, 2006, 2007). This is evident with SSA's share of global manufacturing value added fell from 0.43% in 1980 to 0.41% in 2000 and its share of manufactured exports worsened from 0.3% in 1980 to 0.2% in 2000 compared with East Asia's 6.8% and 18.4% respectively (Lall & Mbula, 2005:2). The region is clearly 'off the map' in dynamic technological upgrading and has become marginalised in global economy. To address these problems requires strengthening domestic technological capabilities and adopt learning technological effort by attracting foreign direct investments (FDI) from overseas. However, this cannot to achieve in the presence of poor framework conditions for growth and competitiveness such as political instability, civil conflict, weak governance, poor macroeconomic management and weak infrastructure (UNIDO, 2004; Lall, 2005).

Enhancing technological capabilities also requires human skills, huge investments and other input requirements often beyond the capacity of most local firms in SSA. Without public sector support in SSA by providing the required infrastructure and technological investments, firms are likely to go without building the required capabilities due mainly to related huge investment costs and skill human resource requirements. The inability of firms to meet these investment requirements, reach the minimum operating efficiency, quality control, equipment maintenance or adapt product designs to changing market conditions or maintain effective linkages with reliable suppliers are unlikely to participate and compete effectively in global markets (Lall, 1992:168). It is important that firms overcome investment, production and linkage capabilities to compete in the sophisticated global

markets where human resource skills, state-of-the-art equipments, quality control and diffusion of technology are crucial. Like firms, countries differ in their abilities to utilise and innovate technologies which go to demonstrate in their productivity, economic performance and growth.

This is corroborated by OECD in evaluating the performance of advanced industrial economies that the long-term economic growth arises from the interplay of incentives and capabilities. Accordingly, for national technological capabilities (NTC) to develop, capabilities in the form of physical investment, human capital and technologies have to be enhanced (see Nelson, 1981). In poor LDCs of SSA, firms are small in size constrained by host of obstacles to build a required capability. In this regard, SSA governments, Uganda and The Gambia without exception, must intervene to provide investment projects and address some collective action problems to facilitate fish enterprises greater access to productive resources, thus enhance their economic performance and global competitiveness. The economic growth miracle of Southeast Asia owed it to enhanced firm and national technological capability building (Lall, 1992) (also see Stiglitz, 1996: 151:77; Chandra et al. 2006; Nelson, 1990; Rasiah, 2004, 2006, 2011 and Skare, 2011). The study of Kim, Lee, Park & Oh (2011) also found out that firm performance is enhanced by intense R&D, learning and external networking capabilities.

The technological capability literature is very much robust and relevant in this study. The inability to build right technological capabilities has severely affected fish production and exports to lucrative and highly competitive global fish markets. Uganda was able to build technological capabilities relative to The Gambia due mainly to joint stakeholders' response to the fish export crisis in 1997 - 2000.

#### 2.4.6 Challenges in the Fishery Industry

The study of SMEs financing in the fisheries industry is different from other SME financing literature requiring fish SMEs to acquire technological capabilities to produce, process, export and maintain sanitary and quality standards across the fish supply chain. Much literature on the fish industry has mainly focus on major exporters of fish and fish products and mainly on aquaculture with very little if any on the LDCs' artisanal and industrial captured fisheries. The fish industry in many SSA countries is dominated by small artisanal enterprises that neither grow nor develop technologically, often referred to as '*enterprises of last resort*'<sup>34</sup>. In most LDCs like Uganda and The Gambia at initial stages of fisheries industrialisation, generally lack resources and industrial capabilities to develop products and comply with sanitary and fish handling systems. These countries are characterised by underdeveloped transport and communication systems, inadequate public utilities and formal financial institutions remain unresponsive to financing needs of small fish enterprises. They lack not only physical and financial resources but also information about inputs, sector coordination and markets. The institutional environment for business activity in most SSA countries is fragmented and weak to support effective interaction<sup>35</sup> in the fisheries industry. The little literature available on institutions suggests that markets, financial institutions, legal and technology systems are weak to transform the fish industry into sophisticated global stage. Key reforms in the laws are long overdue with the enforcement of fisheries laws remain ineffective and continuous challenge. A more

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<sup>34</sup> The people in fishing communities have no other jobs but to turn to the industry for livelihood support. Such enterprises are mainly survivalist in nature neither growing nor dying.

<sup>35</sup> Uganda government was forced to coordinate stakeholder response during the fish export crisis in 1997 – 2000 to address sanitary conditions in the fish supply chain to regain EU export licence.

responsive approach is needed to address these weaknesses if the industry is to remain crucial to the economies of Uganda and The Gambia.

Notwithstanding, fisheries represent the main business of households in communities along the marine coastal regions of The Gambia and lakes in Uganda and the primary employment of 2.4% and 3.5% of the national labour force respectively through employment on boats and farms, upstream and downstream activities such as processing, trading, exporting and those engage in by-products. Fishing contributes immensely to household income of fishermen, nutrition and food security for many people. At a global level, over 200 million people depend on fishing for livelihood (Namisi 2000) and in highly concentrated salmon farming in northern Chile; over 40% of the population depend on fish for diversified livelihood strategies. However, the increasing industrial fishery is a major threat to millions of small-scale artisanal fishermen whose livelihood depends on fisheries being depleted. To promote sustainable fisheries production, fish food and job security in the industry, there is an urgent need for proper management measures be put in place.

Small-scale artisanal fishermen often lack access to formal credit and other supportive services such as high quality fishing gears and fingerlings, professional extension, disease control at landing sites and market information. Over the years, fishing community associations, credit and cooperative groups have rapidly grown in significance addressing the financing needs of artisanal fisheries. Linkages with large fishing firms and overseas importers have been important in pre-financing, supply of fishing equipments, training and offering better prices thus enhancing their catching capacity. Fishery industry is important to many people as it constitute a vital component of diverse and dynamic livelihood

strategies for many who directly and indirectly depend on it (Keizire, 2004). However, despite its importance, artisanal fisheries access to formal finance is limited constraining their contributions to the economy.

Fish is highly perishable commodity which, in principle, should have the shortest possible distribution chain with little involvement of intermediaries as possible. However, in reality, the catch goes through a complex distribution chain from the fishermen to the consumer as shown in Figure 1.2 and 1.3. From the fishermen, middlemen or distributors, factory agents, local retailers at markets, local processors (drying, smoking and salting), factory processors, exporters and overseas supermarket chains to final consumers form part of a complex supply and value chains. Active participation in the supply chain requires capability building to meet importers' demand in terms of sanitary standards, hygiene at landing sites and maintaining the quality, safety and freshness of the fish along the supply chain. The sanitary and hygiene fish handling requirements are complex and costly demanding huge investments in equipments, human skills, plant layout, cooling systems and technologies in the processing and exporting firms. These are relatively better developed in Uganda than in The Gambia, thus explaining the former's greater fish production and export potentials compared to the latter.

However, many developing country governments blamed the strict technical barriers of sanitary and quality requirements of the developed world as a disguise form of trade protection against their fish exports. The issue of trade negotiations has no doubt dominated World Trade Organisation (WTO) meetings in Seattle, USA in 1999, Doha, Qatar in 2003, Paris in 2005 and Geneva in 2004, 2006 and 2008. These meetings attracted protesters around the world opposing WTO policies vis-à-vis trade protection, environmental issues,



corporate influence on trade rules, concerns that beneficiaries of global trade in its current form is highly skewed in favour of the developed countries. The negotiations centred on agricultural subsidies, industrial tariffs and non-tariff barriers considered by the developing countries as barriers to trade and limitation of their participation in global fish trade.

Unlike land with ownership title, fishing in seas, lakes and rivers are open to all. The increasing population growth, external demand and economic activities have put unprecedented pressure on fish stocks. The resultant overfishing led to production losses, declining export revenues, diminishing share of most valuable commercial species (Nile perch in Uganda and demersal species in The Gambia) and declining fish food security. The rapid increase in demand for Nile perch across the region and overseas triggered a swift response from most fishermen to switch from traditional target species to more commercial Nile perch (Jansen, 1999 and Goulding, 1997). With overfished Nile perch due to its high commercial value, processing factories turn to Nile tilapia, Dagaa and Mukene to sell to regional and international markets though these fish species are not highly valued as Nile perch.

The importance of fishery industry to the economies is enormous, however, for it to fulfill its vital role in economic development, structural change in the industry is vital in sustaining growth, increase exports, employment and value addition (Katz, 2006; Chandra, 2006). Diversifications in the industry touching production structure as well as expanding into knowledge-intensive activities are crucial in enhancing regional and international markets competitiveness. Collaboration among firms develops new patterns of interaction – vertical and horizontal linkages that enhance supply and value chain support activities. The emergence of firms to deal in upstream and downstream products broadens the economic

base of the industry for more employment, income for actors, exports and tax revenue, among others. In this process, the State can play an active role through regulation, creating markets, providing public goods, coordinating financial institutions, universities and developing the technological capabilities that can act as a catalyst.

The differences in the way economic sectors move along the learning path and the effect of different types of State intervention in terms of promoting structural change and economic expansion was quite clear in the East Asian miracle study by the World Bank (World Bank, 1993). The findings were astonishing to even the Bank officials who expected the conventional market forces to lead to the successful growth experience of Southeast Asian economies. Instead they found significant public sector involvement was behind the miraculous growth in supporting start-up of new activities, creating markets, institutions and domestic technological capabilities (Katz, 2006). Accordingly, the State must take measures to coordinate firms and public sector R&D agencies, provide and develop public goods needed to accelerate the process of economic development. Equally, the industry must show significant expansion in in-house R&D activities, strengthen links with local universities, public sector laboratories and engineering firms to develop new product designs and process technologies. It is noted that an amount of money a country spends on R&D activities is an important indicator of its commitment to advancing industrial technologies (Lall, 1992; Katz, 2006; Rasiah, 2009), but even more important is the efficiency of local R&D institutions and laboratories in transforming the industry into global competitiveness. Poor functioning and slack performance on the part of institutions and an inadequate incentive regime are the main reasons constraining domestic firms' participation in sophisticated global trade (Katz, 2006; Lall 1992; Rasiah 2009). Private

sector also has a crucial role to play in expanding its commitment to R&D and technological absorption through diffusion, training and adapting existing technologies.

The gaps identified in the literature regarding fish SME financing mentioned under each section. It is important to note the relevance of hire purchasing, factoring and leasing in fish SME operations. These are vital in making equipments available to fishermen, processors and exporters. The collateral issues are less rigid in these transactions as leased equipments themselves serve as surety, could be repossessed by the owner in cases of default. The developments of factoring and leasing are vital options though requiring an effective legal framework. Stock markets though not well developed in the two countries are instrumental in extending long-term financing relative to commercial bank short-term debt financing. In this regard, role of government can be crucial in enhancing fish SMEs increasing access to finance and adapting technologies in the industry.

## **2.5 Summary**

The literature clearly documented fish SME financing constraints from the formal financial sector in developing countries due mainly to weak financial and institutional development, weak business environment, information opacity of small enterprises, collateral issues and the inability of economies to address supply-side constraints. The literature confirms that institutional and financial developments matter in enhancing enterprise access to formal external financial debt. In this regard, building institutional capacities, strategic role of government (as viewed by Beck et al. 2008), developing tailor-made approaches (see Stoneman, 1998) and provision of range of products and services can work around the

inherent institutional, environmental and infrastructural deficiencies and eventually relax the barriers of fish SMEs' access to financial credit and equity.

There is a consensus on the importance of technological development for economic growth requiring LDCs with fast trade liberalisations to push forward their technological progress to enhance their global trade competitiveness and economic viability. It is argued that the promotion of technological change will most effectively contribute to these objectives if it forms part of a broader strategy aimed at developing productive capabilities and increasing employment. Technological change increases the productivity of land, labour and capital, reducing costs of production and improving the quality of products. To be internationally competitive requires having latest technology. In an open economy, this is not only vital for export growth but also necessary for domestic production to serve the local markets.

The level of technological capability developments in LDCs is very weak. Most people in LDCs have to earn their living using only labour with rudimentary tools and equipment, low education and training, weak access to financial credit and poor infrastructure. As a result, labour productivity is low leading to increase underemployment. This is the basic cause of extreme and persistent mass poverty in LDCs (UNIDO, 2007). As a result, the development of productive capabilities, including policies to promote technological learning and innovation are key priorities to promote sustained economic growth in LDCs.

Further analysis using quantitative time-series variations, qualitative survey data to examine patterns of fish SME financing sources and constraints and supportive government policies are carried out in the analytical chapters from three through to six. The next Chapter focuses on the importance of fishery industry to the economies of Uganda and The Gambia.

## **CHAPTER 3**

### **FISHERY INDUSTRY AND ECONOMIC DEVELOPMENT**

#### **3.1 Introduction**

While much of the literature on the fishing industry has focused on the super exporters of Norway, Chile, Vietnam and China, there has been a rise in works articulating the contribution of the industry in the livelihoods of poor countries. Among African countries significant works have emerged on Ghana, Mauritania, Namibia, Senegal, South Africa, Uganda and Tanzania (Keizire, 2004; Kurien, 2004; Bene, 2008, 2010). Export markets have become increasingly important in driving production in these countries. In this chapter, we examine the production and export experiences of The Gambia and Uganda and come up with findings vital for public policy. The study found out the acute supply-side constraints associated with technological capabilities, compliance with sanitary standards, greater financial inclusion and public policy support limit most developing countries, Uganda and The Gambia without exception, to participate and compete in global fish market where these capabilities matter. The limited value addition has led to low industry contributions to the economy in terms of export earnings, job creation, tax revenues, among others.

Agricultural products including fish and fish products have been a major source of income for most developing countries through exports of primary agricultural products. Most developing countries earn their foreign exchange through such exports and use the foreign exchange earnings to import capital goods and raw materials necessary for rapid growth and low-cost food stuff to support local food security (FAO, 2005, 2007; Valdimarsson et al. 2001 and Kurien, 2003). However, many researchers including Chandra et al. (2006); Lall (1992, 2005); Stiglitz (2002); Rasiah (2007, 2009); Sachs (2001); Stevens (2003) and

Akanni et al. (2006) have argued that reliance on primary goods does not help boost the export value for economic development unless countries implement industrialisation strategy by adding value.

In this regard, technological capability building of domestic firms and increased human resource skills, learning and adapting technologies are crucial way forward for growth and development. As a result, many developing countries including Kenya, Indonesia, Philippines, Bolivia, Mexico, Argentina and Brazil have over the years implemented import substitution industry (ISI) strategies to switch away from primary goods exports to add value, in an attempt to create wealth, participate and compete effectively in international markets. This is based on the consensus that countries grow more slowly by relying on export of primary goods<sup>36</sup> compared to countries that have industrialise, growing very fast with advance technologies in manufacturing industry (Stiglitz 2002; Lall, 2000, 2005; Akanni et al. 2006). The successes of salmon farming in Chile (Katz, 2006; Rasiah, 2012), the development of oil palm and electronics in Malaysia (Rasiah, 2006), the boost in Nile perch exports in Uganda (Kiggundu, 2006), coloured television in Taiwan (Mathew, 2006) and increased grapes and maize production in India (Naik, 2006) owed their rapid growth to sustained government policy support, firm and national levels capability building, R&D and value addition.

Global trade has significant impact on welfare and economic growth in countries with developed institutional capabilities (Lall, 1992, 2005, Rasiah 2007, 2009). Despite the opportunities created in the trade theory argument, many developing economies including

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<sup>36</sup> This is responsible for Sub-Saharan African economies' slow growth relative to other regions by its huge reliance on primary good exports, low value addition and importing manufactured goods overseas.

Uganda and The Gambia find it difficult to produce, add value and export agricultural products to significant levels due to acute supply-side constrain factors (UNCTAD 2008; Fulgencio, 2009; Rasiah, 2007; Ponte 2002; Jaabi & Rasiah 2014).

### **3.2 Pro and Anti- Global Fish Trade**

International fish trade in promoting economic growth, income distribution and development has attracted much debate in development economics literature (Stevens, 2003; Kaczynski & Fluharty, 2002; Bene, 2008; Bene et al. 2010). However, the real effect of global fish trade on economic growth and development remains contentious (Edward, 2006; Wade, 2004) with many policy analysts and researchers reporting on the crucial role of fish export revenues in the economy (Abila 2000, 2006; Basu, 2006; Kalwij & Verschoor, 2007) while others including Jansen (1999, 2000); Petersen (2003); Keizire (2004); Bene (2008, 2010); Fulgencio (2009) are concerned with overfishing, ecological conservation, local fish food security and inclusive growth and development.

The two views of international fish trade co-existed in the literature, detailing the importance of fish trade on economies of exporting developing economies. The pro-fish trade views follow the general trade theory argument which claims that fish trade is important to the economy in terms of job creation, exports, household incomes, increasing government tax revenue, licence fees and food security (Abila et al, 2000 and Kurien, 2004). Through linkages and externalities, growth in global fish trade have made important contributions to socio-economic developments in developing economies in terms of foreign exchange cash flow earnings and an increase GDP contributions (Thorpe, 2004; Valdimarsson, 2003; World Bank, 2004). The foreign exchange earnings can be a critical life-wire for many developing countries in servicing international debts; paying of surging

imports and financing the overall government expenditure commitments (see Abila & Jansen, 1997, 2000; Geheb, 2007; Kurien, 2005 and Schmidt, 2006).

Apart from being a rich source of animal protein and fishmeal for animal feeds, the development of industry does facilitate fisheries industrialisation<sup>37</sup> with huge investments in plant and machinery, technology, human resource skills development and physical infrastructure. This is true of Uganda and The Gambia where over USD\$200 million was invested over the years in fishery industrialisation, physical infrastructure, capacity building, laboratory testing centres, and social infrastructural development such as schools, health centres and recreational facilities in fishing communities (Abila et al. 2000; Njie, 2007; Fulgencio, 2009).

Until the late 1980s to early 90s, Uganda and The Gambia's fisheries sectors were largely subsistence and artisanal, serving the local and regional markets. Structural adjustment programs (SAP) introduced in both countries in the late 1980s helped revamp the sagging economy by liberalising trade and removing all the barriers that hindered full participation in global fish trade. With increased package of new investments, effective collaboration in the industry and supportive trade policies catapulted Uganda's fisheries sector to become a major foreign exchange earner, a leading non-traditional export commodity overtaking the dominance of coffee<sup>38</sup> in 2005 and contributing to about 2.5 percent to Uganda's GDP (Fulgencio, 2009:436). The fish industry grew very fast with increased export earnings and

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<sup>37</sup> Fish exports can encourage foreign and domestic investments to exploit opportunities in the market

<sup>38</sup> Fish has higher agricultural GDP contributions of 21.6% compared with 18.4% for coffee in 2005 (Rogers et al. 2009)



providing direct employment to 175,890 fishermen in 2004 (The Monitor, August 13, 2004), 199,242 fishermen in 2008 and livelihood support to over two million people. The industrial fisheries development in Uganda was influenced by the policy support that resulted to the influx of regional multinational corporations from neighbouring countries to exploit the opportunities created by increasing Nile perch catches and exports. The developments of fisheries sector in The Gambia took a different trajectory with artisanal fisheries dominating the industry with its inherent capability constraints. Fish exports of The Gambia reached its highest at USD5.3 million in 2010. The industry has a great potential for growth and continues to be a major source of employment and other livelihood support particularly in fishing communities.

However, the anti-fish trade group, such as, Abila & Jansen (1997); Jansen (1999) and Kent (1997) argued its negative impact on food security, national economic development and livelihoods of most people who depend on the industry for diverse support in developing countries<sup>39</sup>. Petersen (2003) argues that export revenues are rarely ploughed back to develop the sector and even if they do, barely small amounts are reinvested fetching minimal economic benefits. Abila (2003); Bene (2008); Bene et al. (2010); Jansen (1997, 1999) and Kaczynski & Fluharty (2002) claimed that the international fish trade amounts to job losses as artisanal fishermen in Lake Victoria are consistently marginalised in the industry by large industrial fisheries and to a large extent government policies are geared towards supporting industrial fish exports relative to local artisanal fisheries. Jansen (1997); Abila (2003) and Abila, Odongkara & Onyango (2006) feared the potential of

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<sup>39</sup> It is also argued that fisheries agreements between European Union and developing coastal West African countries did not benefit the latter as they are disadvantaged with unfair returns from such agreements (Alder & Sumaila, 2004; Kaczynski & Fluharty, 2002)

capital flight as foreign multinational corporations (MNCs) dominate the industry in riparian Lake Victoria states (also see Bene 2008 and Bene et al. 2010).

Further concerns of unchecked fish trade are associated with considerable expansion in fish exports to international markets unmatched with measures to balance local and international demand, ecological sustainability, sound fisheries conservation and management practices. By mid-2000, there was inevitable decline in Nile perch catches owing to overfishing, harvesting of juvenile Nile perch, increasing use of illegal fishing gear and inappropriate fishing methods. In the coastal states of West Africa, the fish agreements with EU countries, Korea and China contributed to overfishing in these regions with relative meagre financial compensation<sup>40</sup> (Kaczynski & Fluharty, 2002).

Fish trade not only puts in danger the ecological sustainability but reduces fish supply for local consumption. Despite these concerns in developing SSA, international fish trade has grown in importance globally over the years, fetching USD8 billion in 1978, USD58 billion in 2001 and reached USD78 billion in 2005 (FAO, 2007). Accordingly, about half of this level (48% by value) comes from developing countries and 72% are exported to markets of EU, USA, Middle-east and Japan (FAO, 2007, DFID, 2005). The important species traded are shrimps (16.6% by value in 2004), ground fish (such as cod, hake and haddock), tuna and salmon.

Calls for joint action to address key constraints are required with infrastructural problems virtually topping the list of priorities. The lack of adequate supply of infrastructure in SSA

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<sup>40</sup> EU vessels activities led to excessive overfishing and often disregard the Coastal States' laws governing responsible fishing. Records show that EU vessels in 1993-96 caught 45 million tonnes of various species with a total value of USD78 million compared with vessels' licence fees and EU compensation payments of USD\$8.25 million, representing 10.5% of total fish value caught by EU vessels in the EEZs in this region (Kaczynski & Fluharty, 2002).

has long been viewed both in policy debate and academic literature as key obstacles to the region's economic development. Consensus has emerged on related empirical literature (Wodon 2002; World Bank 2006) that under conducive environments, infrastructural development can be crucial in promoting economic growth and equity (Calderon & Serven, 2008). Transport costs is evidently high in SSA compared to other regions (see Limao & Venables, 2001) with explicit and implicit costs in shipping delays particularly for landlocked countries like Uganda coupled with a relative higher cost of doing business (Gelb et al. 2007) poses a major barrier to most developing countries participation in global trade.

In addition, to realise the full benefits of fish exports revenue, an efficient distribution mechanism must be in place (Kurien, 2004; Thorpe, 2004; Wade, 2004; Kalwij and Verschoor, 2007). It is worth mentioning that lack of an efficient redistribution mechanism of fish and its export revenues has contributed less to improve the wellbeing of the community and industry development. Distribution mechanism is key in making fish accessible and affordable to large part of the population through the use of refrigerated trucks to supply local markets even in remote areas. The case justified the assertion that most developing SSA countries derived huge revenues from agricultural exports with surprisingly limited impact on economic and development indicators, thus putting serious challenges on the effectiveness of its distribution (Kurien, 2004, Bene, 2008, 2010).

For food security purposes, fish supply and availability alone are not enough (Borton & Shoham, 1991); they must be affordable and accessible by the people. For example, the high-priced Nile perch is often beyond the reach of many local consumers in Lake Victoria region (Kiggundu, 2006). A case in point is Kisumu, outskirts of Nairobi with the highest number of fish processing factories having an increasing food deficient and poverty

incidences (Odongkara, 2001 and Abila, 2000). The incidence of chronic malnutrition declined at country-level but rose in Kisumu District with 24% of children stunted compared to 20% nationally (Abila et al. 2006). The case of Chile is also cited as among the world largest producers and exporters of fish with the entire region devoted to the export-oriented salmon farming<sup>41</sup>. The study of Kurien (2003) found out that the local community benefitted very little from the exports of high valued fish products; however, the livelihoods of the people living in communities is enhanced by international fish trade through their wage earnings from employment in the fish industry. However, the case of high malnutrition in Kisumu (Kenya) and increasing poverty levels in Chile's salmon farming region may not be attributable to fish trade alone as poverty is multi-dimensional in nature.

This chapter tries to address the importance of fish industry in the two economies (research question one) and apply relevant methodology to aid in the analysis process. Methodology is introduced after an introduction and the two views on international fish trade in the earlier sections. Conceptual framework and data analysis follow to examine the importance of fish SMEs in the two countries. Risk factors in the two fisheries industries are also examined and summary of findings concludes the chapter.

### **3.3 Methodology**

The information presented in this section is generated through quantitative data research conducted by sourcing information on fisheries industries in the two countries. Data on fish exports, fish imports, GDP, total exports and total imports were sourced from Uganda

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<sup>41</sup> Chile's lake region has the highest concentration of salmon farming exports, surprisingly recorded as one of the poorest region in terms of average income per capita

Bureau of Statistic, The Gambia Bureaus of Statistic, Bank of Uganda, Central Bank of The Gambia, Uganda Department of Fisheries Resources, Gambia Department of Fisheries, World Bank website and FAO fish statistics.

The works of Kurien (2003); Bene (2008) and Bene et al. (2010) show fish revenues in most SSA are not adequate enough irrespective of an efficient income redistribution mechanisms exist or not, to have any meaningful effect on economic and development indicators. This is associated with SSA economies weak institutions and poor infrastructural developments to enhance growth potentials. Due to an underdeveloped fisheries sector except for few countries like Senegal, Ghana, Ghana, Mauritania and South Africa<sup>42</sup>, the volume of fish production and exports are not significant to impact considerably on the economic and human indicators (also see Bene 2008; Abila et al. 2006).

Using descriptive statistics and Ordinary Least Squares (OLS) regression models, Bene (2008) and Bene et al. (2010) tested five fisheries indicators<sup>43</sup> significance of correlation with four economic and development indicators<sup>44</sup>. The result found no demonstrable correlation in 47 Sub-Saharan Africa (SSA) countries between international fish trade revenues and economic and human development indicators. The fish production and exports to GDP in most SSA are so meagre to impact significantly on the economy with

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<sup>42</sup> In Senegal where fish exports forms 60.4% of agricultural exports and about 8% of GDP also in Ghana, South Africa and Mauritania, nevertheless wealth created in the real sector need to trickle down through effective income distribution mechanism for economic growth and development, (Wade 2004; Basu 2006 and Bene 2008). This is difficult to realise in most SSA where public institutions, infrastructure and firm capabilities are weak to add value.

<sup>43</sup> Fish production exported, per capita fish export, fish export as percentage of agricultural export, per capita fish production and presence of fish agreements

<sup>44</sup> Mortality rate, Malnutrition, mean monthly per capita income and per capita GDP

most countries recording as low as 2% of GDP. The impact of fish on malnutrition, child mortality and GDP per capita at national level may be constrained by structural weaknesses, poor management of public institutions, poor governance, official corruption and infrastructural weaknesses rather than fish production and exports. Thus, the works of Bene (2008) and Bene et al. (2010) are not robust enough.

The gap exists to use alternative methodologies to assess fish industry importance to the two economies. This study makes use of time series data of the two-country study of Uganda and The Gambia to assess developments in the fisheries sector in terms of trade balance, elasticity of exports on output and fish trade composition in total exports and GDP. Moreover, in most SSA countries, Uganda and The Gambia without exception, export revenues are paid into national treasury to finance civil service salaries, import bills, political projects and other government expenditure requirements rather than plough back to develop the sector. Even if the fish revenues are reinvested, the weak public management of institutions and poor governance undermines industry development (see Abila, 2000; Odongkara, 1999; Bene, 2008 and Bene et al. 2010).

In this section, we attempt to assess fish trade performance from 1990 – 2010 in Uganda and The Gambia using the following methodologies:

- i. Fish trade balance, imports in domestic demand, fish import and exports in total imports and total exports, fish production exported, fish exports to Gross Domestic Product (GDP) and export elasticity of output are analysed to assess the importance of fish industry in the two countries.
- ii. Using Intra-Industry Trade (IIT) to measure trade performance and gauge an increase specialisation and competitiveness of the two fisheries industries.

$$\text{Trade Balance} = X_{it} - M_{it} / X_{it} + M_{it}$$

Where  $X_{it}$  = Exports of industry (i) in period (t)

$M_{it}$  = Imports of Industry (i) in period (t)

Trade Balance lies between 0 and 1

Zero indicates lower export in trade balance (implying more imports, meaning the local industry does not cater entirely for the domestic market) and values close to 1 indicates higher rate of exports than imports,

iii. Imports in Domestic Demand – represent as  $M_{it} / (Y_{it} - X_{it} + M_{it})$

Where:  $M_{it}$  = Imports of Industry (i) in period (t)

$Y_{it}$  = Output of industry (i) in period (t)

$X_{it}$  = Exports of industry (i) in period (t)

iv. Exports Elasticity of Output (lower level indicates large part of production consume locally and vice versa)

= (Change in Exports/Change in Output)

v. Fish imports/Total Imports

vi. Fish exports/Total Exports

vii. Fish production exported

viii. Fish Exports/GDP

ix. Industry Employment and Earnings

Supply-side constraints are key obstacles to SSA countries production and exports of agricultural products. Issues of macro-economic stability, infrastructure, governance, business environment, skilled labour and technology (see Figure 3.1) are identified as major constraints to fish enterprises in producing large quantities and export to high value markets.

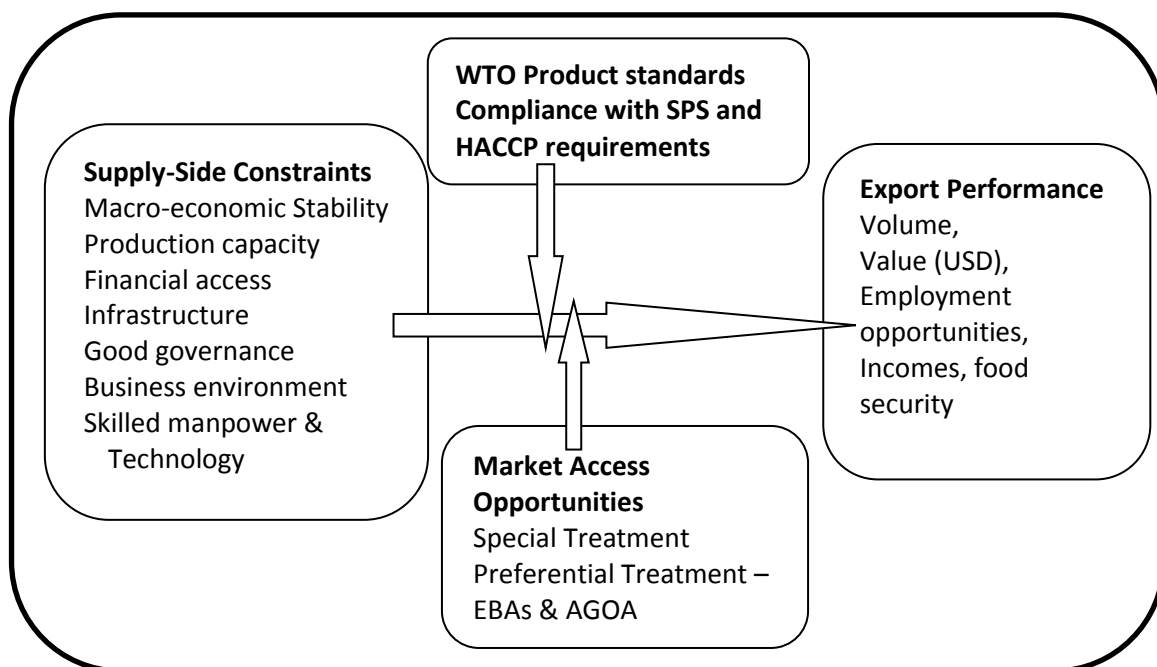
Non-compliance with international quality standards deprives most African enterprises access to key international markets leading to a further reduction in global market share particularly in manufactured agricultural products. Failure to address market access and international standard compliance issues, SSA enterprises and farmers tend to lose the opportunity of taking full advantage of recent market opening initiatives of the United States' African Growth and Opportunity Act (AGOA) and the European Union's Everything But Arms (EBAs) as shown in Figure 3.1. Exports of most SSA failed to compete in global markets due to weak capabilities in meeting product standard compliance requirements. This forced most LDCs including Uganda and The Gambia to rely on the export of primary fish products which according to several studies (Lall, 2000, 2005; Sachs, 2002; Akanni et al. 2006) slow down economic growth and development.

The development of technological infrastructure (R&D support, quality compliance and metrology) and the provision of technological support to SMEs are critical supply-side challenge in industrial upgrading. These measures are increasingly stringent in the global market in the last two decades with international trade in perishable and manufactured goods considerably requiring high quality compliance. These conditionalities and complexities in terms of stringent technical barriers and strict quarantine are considered in most developing countries as disguise trade protection constraining their exports. A collaborative joint effort as argued by Porter (1990); Rasiah, (2007) and Beck et al. (2008) is required to enhance standards compliance and meso-organisations to support enterprises in technology capability building.

However, evidence shows that there is little of this existing in most SSA and the structural adjustment programs of the 1980s - 90s include no such provisions (Lall et al. 2005). The



situation is compounded by the fact that most fish enterprises do not have in-house R&D and there is very little or no interaction between the manufacturing industry and the technological and knowledge infrastructure that provide R&D and technical back-up to fish SMEs (see Lall, 1992, 2005, Dutrenit, 2005; Katz, 2006; Skare, 2012).



**Figure 3.1: Analytical Framework of Supply-Side Constraints**

Source: Adapted from (Rogers & Pontius, 2009:230)

Note: EBAs – Everything But Arms, AGOA – African Growth Opportunity Act

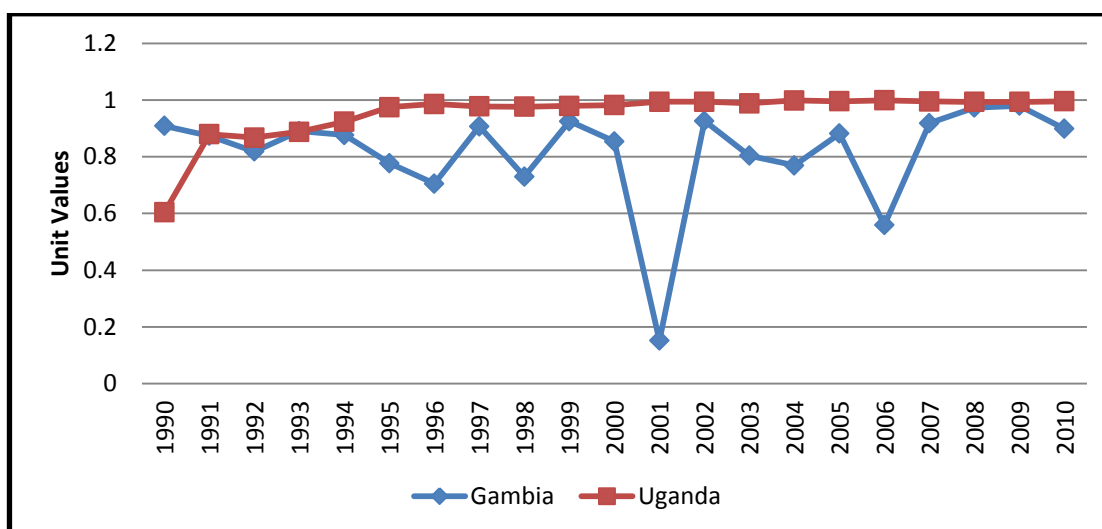
A strong and proactive technology infrastructure is key in upgrading the competitive capabilities of fish SME industry. Most Eastern and Southeast Asian governments have invested significantly in providing increase technological support to these enterprises due to inabilities of small enterprises to pay full costs upfront. In view of the resource constraints, partially selective intervention is appropriate targeting industry clusters that are key in international competitiveness and growth (see Lall, 2005). Under free market approach, private enterprises in LDCs find it difficult to provide sophisticated equipments required for production and meeting quality standards demanded by international markets.

### **3.4 Findings**

In this section, fish data is presented and analysed from the two countries to assess the importance of the fisheries industry based on key determinants such as trade balance, imports in domestic demand, exports elasticity of output, fish imports and exports to total imports and total exports, fish production exported, fish exports to GDP and employment.

#### **3.4.1 Fish Trade Balance**

The fish trade balance of Uganda shows increasing growth from 1990 through to 2010 (see Figure 3.2). Uganda's level rose sharply from 1990 until 1992 when it dropped slightly and surged up through to 2010 with values closer to 1, suggesting efficiency and competitiveness of Ugandan fish trade. Uganda therefore shows high levels of fish exports relative to imports during the period associated with relatively better developed fishery sector relative to The Gambia. Uganda recorded a strong network cohesion (Uganda Fish Processors and Exporters Association, UFPEA), large industrial firm capabilities, public sector support, supportive meso-organisations, effective collaboration with international development agencies, such as UNIDO which supported immensely the upgrading of fish laboratories, trained laboratory, Department of Fisheries Resources and UNBS officials. These supports facilitated the resumption of Uganda's fish exports to the lucrative EU markets in 2000 after the fish export crisis that almost collapses the industry.



**Figure 3.2: Fish Trade Balance, Uganda, The Gambia, 1990-2010**

Source: Uganda Bureau of Statistics (2011), The Gambia Department of Fisheries (2011)

Uganda shows higher levels of fish trade balance closer to 1 (meaning efficiency and competitiveness in its fish trade) throughout the period, increasing from 0.6039 in 1990 to 0.9749 in 1995 and consistently along the same trend through to 0.9956 in 2010. This manifests a relative higher export value than imports, thus fish trade efficient. Its fish imports show insignificant levels relative to fish exports. The Gambia, on the other hand, shows erratic and volatile levels throughout the period. It recorded its lowest in 2001 due to volatile fish exports and relative higher fish imports relative to Uganda.

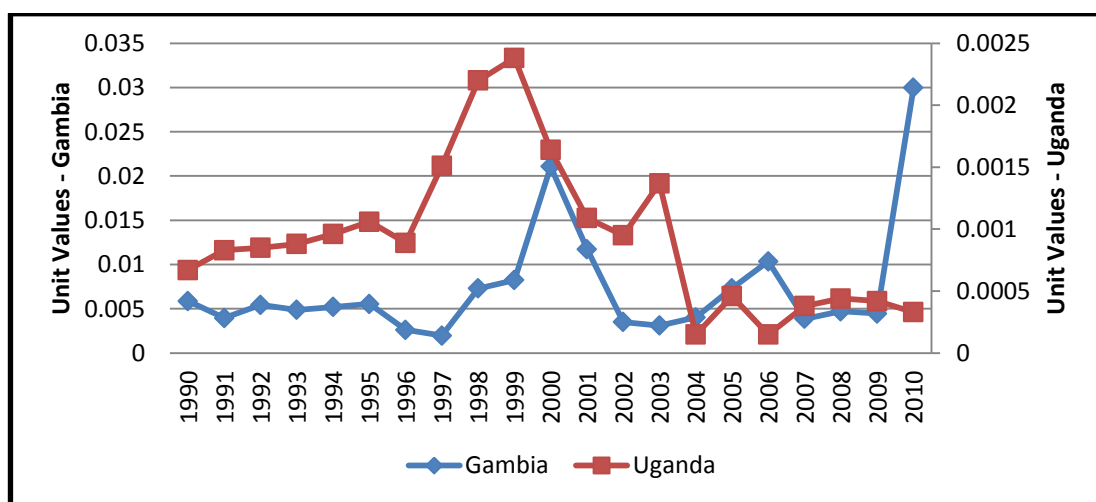
The Gambia shows sharp changes in its trade balance trend throughout the period due mainly to its weak export potentials. This is explained by the targeting high valued fish species by fish exporters as shown in 2001 and 2006 when fish exports fell to its trough and imports rose to its highest in those years. It recovered thereafter recording increasing levels from 2007 through to 2010. The underdevelopment of the industrial fisheries in The Gambia and the weak artisanal fisheries dominating the industry lacking basic capabilities

in meeting EU fish exports sanitary standards, explained the relative lower and erratic fish trade balance trend relative to Uganda.

### 3.4.2 Imports in Domestic Demand

To meet domestic consumption demand, fish and fish products are imported to supplement local fish production. In Figure 3.3, Uganda shows relative lower imports in domestic demand recording 0.0007 in 1990 increasing to 0.0011 in 1995. It grew marginally to 0.0016 in 2000 dropping through to a level of 0.0003 in 2010. The level was at its highest in 1999 as shown in Figure 3.3 due to increasing imports explained by fish export crisis of 1997 – 2000 to meet fish food safety needs for local production. However, relative to The Gambia, Uganda has much lower fish imports in domestic demand during the period as shown in Figure 3.3.

The Gambia recorded a relative higher level of imports in domestic demand, recording 0.0058 in 1990 rising to 0.0073 in 1998 to a high level of 0.0211 in 2000. It thereafter dropped to 0.004 in 2004 before surging up to its highest at 0.0299 in 2010.



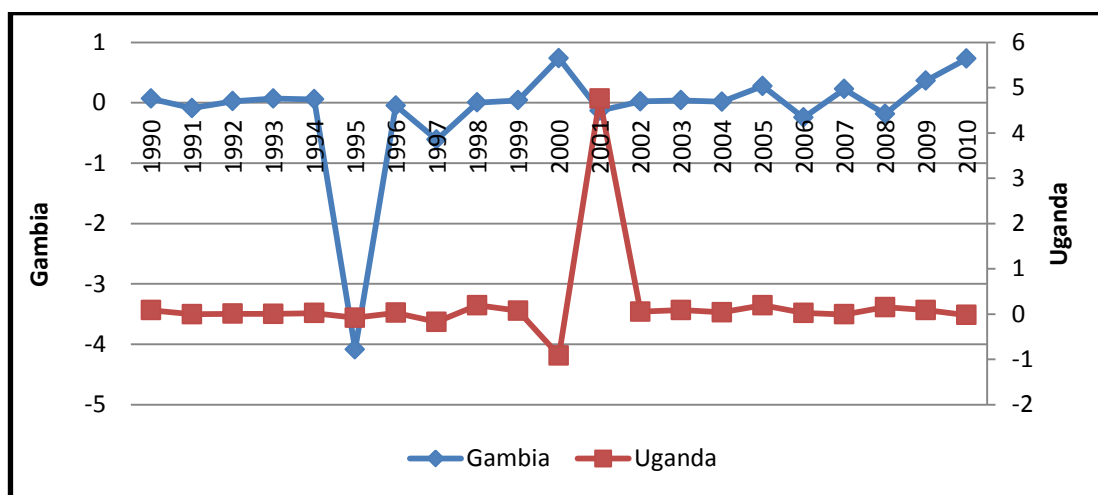
**Figure 3.3: Imports in Domestic Demand, Uganda, The Gambia, 1990-2010**

Source: Uganda Bureau of Statistics (2011), Gambia Bureau of Statistics (2011)

The Gambia recorded relatively higher levels of imports in domestic demand compared to Uganda explained by its weak production capacity and dominance of artisanal fisheries in the industry facing host of operational constraints. Due to its erratic and lower levels of exports, imports also show similar trend with higher levels in 2000, 2006 and 2010 to supplement domestic fish production in meeting local consumption demand.

### 3.4.3 Export Elasticity of Output

The lower levels of export elasticity of output suggest higher local consumption of fish than exported. Export elasticity of output is more stable in Uganda than in The Gambia except in 2000 and 2001 when it dropped to its trough at -0.9156 and to its highest level at 4.7533 respectively. The expansion export elasticity of output in 2001 is associated with greater exports after graduating from fish export crisis. These were due to greater changes in output relative to export quantities. From 1990 through to 2010 except for those two years, the levels range from -0.1746 to 0.0038, quite insignificant in the review period.



**Figure 3.4: Export Elasticity of Output, Uganda, The Gambia, 1990-2010**

Source: Uganda Bureau of Statistics (2011), Gambia Department of Fisheries (2011)

On the other hand, The Gambia recorded inconsistent levels throughout the period, falling to its lowest at -4.087 in 1995 (meaning high local consumption) to its highest level of 0.7358 in 2000 as shown in Figure 3.4. These have been due to negative changes in export quantities in 1995 and 2000 coupled with low output change in 1995. The change in output is greater than change in export quantities in both countries with greater change registered in Uganda than The Gambia in 2000 and 2001. These manifest low export volume, meaning higher local consumption of fish and fish products during the period in both countries. This is explained by the constraints of meeting quality and sanitary standards on the one hand and the high local demand to meet the fish nutrients needs of the population. Many artisanal fish enterprises lacking capabilities to export in both countries produce mainly for local consumption to raise incomes, employment and meet animal protein fish food security of majority of the population. This is corroborated in Table 3.1 showing that fish catches, exports and proportion of fish production exported.

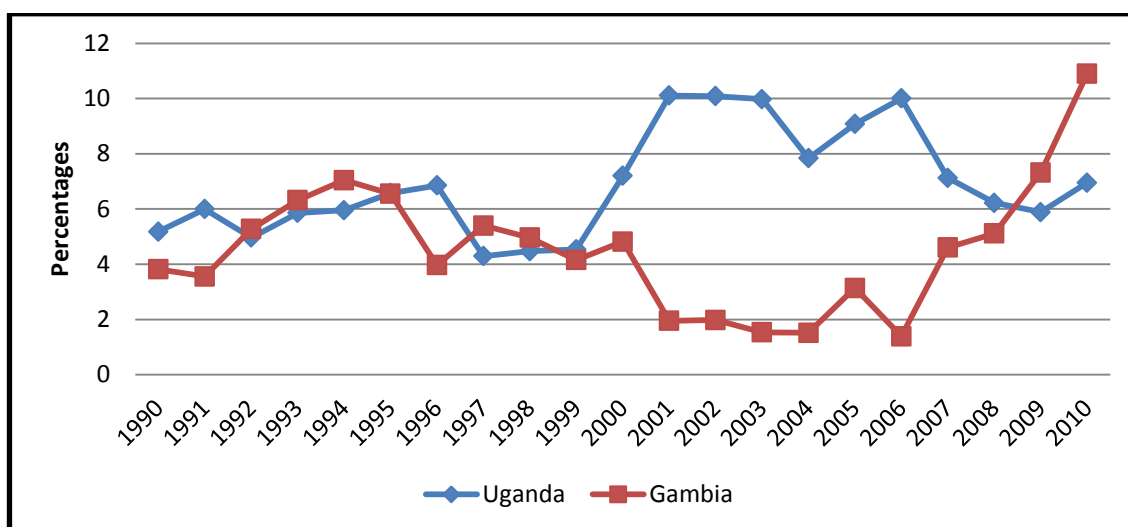
Fish production and exports of Uganda by far outstrip that of The Gambia as shown in Table 3.1 due largely to better developed industry, institutional developments, and industrial fisheries dominance as opposed to artisanal fisheries dominance in The Gambia. However, fish production exported shows less than 12% in both countries suggesting much of the fish produced is consumed locally to meet the fish nutrient needs of the population. Uganda recorded higher levels than The Gambia except during the export crisis period of 1997 to 2010 when The Gambia recorded higher percentage levels of production exported.

**Table 3.1: Fish Production and Exports, Uganda, The Gambia, 2010**

Years	Uganda			The Gambia		
	Fish Production Metric tons	Fish Exports Metric Tons	Fish Production Exported %	Fish production Metric Tons	Fish Exported Metric Tons	Fish Production Exported %
1990	245223	12706	5.1814	37970	1449.3	3.8169
1991	214570	12866	5.9962	43386	1544.4	3.5597
1992	267400	13283	4.9675	20095	1060.9	5.2794
1993	223833	13115	5.8593	25272	1597.9	6.3228
1994	217946	12986	5.9584	27669	1949.6	7.0461
1995	208789	13735	6.5784	27736	1817.1	6.5514
1996	195088	13365	6.8507	38882	1543.3	3.9692
1997	218026	9361	4.2935	38231	2063.4	5.3972
1998	220628	9862	4.4700	33546	1665.5	4.9648
1999	226097	10256	4.5361	40350	1676.5	4.1549
2000	219356	15800	7.2029	29016	1,399	4.8229
2001	220726	22313	10.1089	34527	675	1.9541
2002	221898	22375	10.0835	45764	908	1.9836
2003	241810	24128	9.9781	37364	574	1.5360
2004	371789	29138	7.8372	32423	492	1.5187
2005	416758	37836	9.0786	34586	1,087	3.1427
2006	367099	36717	10.0019	36912	513	1.3897
2007	500000	35642	7.1284	43574	2,008	4.6076
2008	450000	27992	6.2204	42645	2,182	5.1174
2009	400000	23550	5.8875	45881	3,359	7.3217
2010	352600	24505	6.9498	48532	5,290	10.9002

Source: UBOS (2011), Department of Fisheries (2011)

The Gambia reported low levels of fish production and exports (volumes and values) during the period due to weak capabilities and the general lack of linkages, network cohesion and policy support to push the industry further to global competitiveness.



**Figure 3.5: Fish Production Exported, Uganda, The Gambia, 1990 - 2010**

Source: Uganda Bureau of Statistics, (2011), Department of Fisheries (2011)

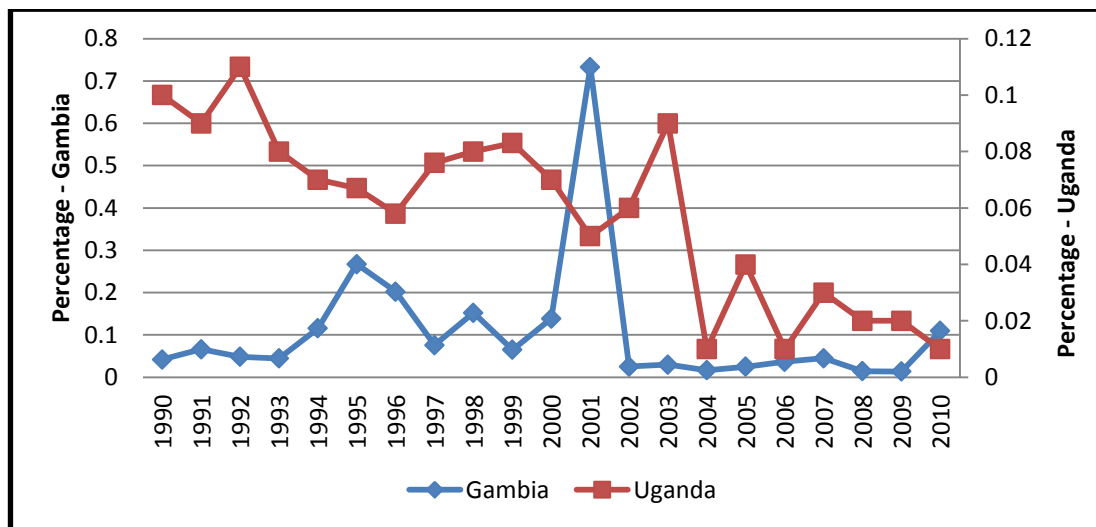
Figure 3.5 shows mix levels with The Gambia raising its levels to 1994 when it dropped consistently through to 2006 - its lowest export quantity before increasing thereafter to its highest at 10.9% in 2010. Uganda's level also increased through to 1996 when it dropped from 1997 – 2000 due to fish export crisis then rose thereafter to 2006 at 10% before declining to 6.95% in 2010. Uganda exported not more than 10% of its production in 2006 making available 90% of fish production available for local consumption. Similarly, The Gambia's highest fish production exported reached only 10.9% in 2010 suggesting 89.1% is available for local consumption. The large proportion of fish for local consumption may also be associated with fish species that do not attract high values in the global markets such as Nile tilapia, Dagaa, cuttlefish, among others not as attractive as Nile perch.

#### **3.4.4: Fish Imports to Total Imports**

Fish imports show higher levels of total imports in The Gambia relative to Uganda though both countries recorded less than 1% as shown in Figure 3.6. Uganda recorded its highest level of 0.11% in 1992 through to 0.01% in 2010 due mainly to a relative lower fish import.



This suggests the greater domestic fish production is meeting local demand. The level dropped from 1992 through to 1996 when it rose during 1997- 1999 due to Uganda's fish export crisis<sup>45</sup>.



**Figure 3.6: Fish Imports to Total Imports, Uganda, The Gambia, 1990 -2010**

Source: Uganda Bureau of Statistics (2011), Gambia Department of Fisheries (2011)

The fish export crisis calls for joint action to address the situation with government taking the lead in collaboration with international development partners, private sector, meso-organisations and the fish importers association in EU. The upgrading of landing sites, improve hygiene along the supply chains, upgraded laboratories and greater human resource capacity building resulted to the industry regaining fish export licence to once again resume exports to lucrative overseas markets. Fish imports grew during the crisis period as expected as the local fish production was not safe for consumption. It increased

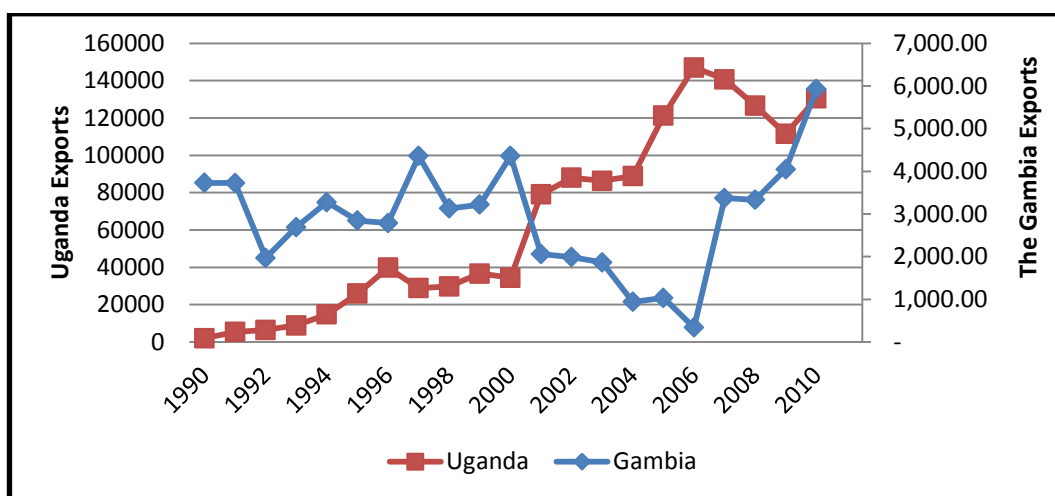
<sup>45</sup> The discovery of Salmonellae bacteria in Ugandan fish exports in Spain coupled with the use of pesticides to poison Lake Victoria to catch fish by small fishermen and the outbreak of cholera that hit Uganda in 1997 resulted to the imposition of fish import ban by European Union through its Directive 91/493/EEC and 97/296/EC. During this period, not only export was ban but local fish consumption has declined considerably with the fear of fish food poisoning.

again in 2003 when it recorded a high fish import bill of USD \$1038 forming 0.09% of total imports. It thereafter dropped through to its trough at 0.01% in 2010.

The Gambia, on the other hand, recorded a more stable trend except in 2001 when it recorded its highest level of 0.73% due to low fish species demanded locally. It recorded its lowest at 0.015% in 2009 due to improved production in meeting local demand. The relative higher proportion of fish imports to total imports in The Gambia is associated with weak local fish production due mainly to underdeveloped industrial fisheries and weak artisanal fisheries sector to provide the right quantity and species demanded in domestic market. Much of the industrial fisheries catches are not landed in the country but in overseas fish ports denying the economy of much needed fish species, income, jobs and export earnings.

### **3.4.5 Fish Exports of Uganda and The Gambia**

The fishing industry is crucial to the economies of both countries in terms of its contribution to the economy through fish export revenues. Fish exports of Uganda grew consistently from USD1.9 million in 1990 through to USD39.8 million in 1996. It declined from 1997 – 2000 explained by the EU fish import ban from Lake Victoria that led to the fish export crisis as shown in Figure 3.7. After the ban was lifted in 2000, exports grew sharply from USD34.4 million in 2000 to USD79 million in 2001. It attained its highest level in 2006 at USD147 million, declining thereafter to USD111.5 million in 2009 due to concerns of overfished Nile perch and competition in global markets for fish and fish products (see Figure 3.7). Fish exports, however, recovered and grew to USD131 million in 2010.



**Figure 3.7: Fish Exports- Uganda, The Gambia, 1990-2010 (USD'000)**

Source: Uganda Bureau of Statistics (2011), The Gambia Department of Fisheries (2011)

Fish exports are indeed important to The Gambian economy with over 200,000 people dependent on the industry for livelihood (Department of Fisheries, 2009:11-12). Fish export is the second largest agricultural export commodity after groundnuts constituting 15% of merchandise export earnings (Central Bank of The Gambia, 2011). Fish exports were high at USD4.36 million in 2000 dropping considerably thereafter through to its trough of USD0.33 million in 2006 due mainly to weak export volumes, explained by fish exporting enterprises targeting high valued fish species in overseas markets. It rose again from USD3.37 million in 2007 through to USD5.93 million in 2010 as shown in Figure 3.7.

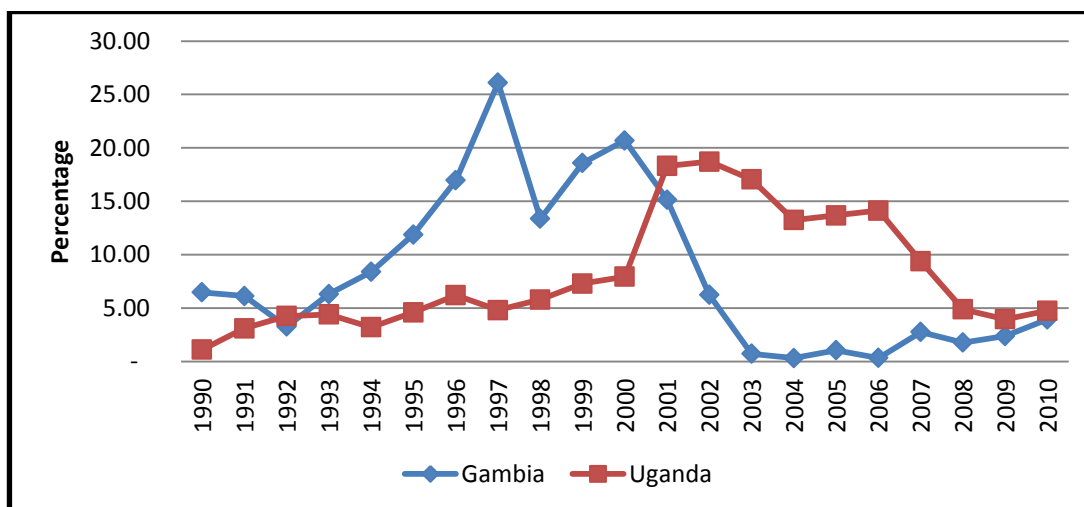
Over 90% of industrial fisheries legally operating in marine waters of The Gambia are foreign vessels. Quite apart from the significant fish over-exploitation through bilateral fisheries trade agreements with EU and neighbouring Senegal, The Gambia until 2009 does not have a dedicated industrial fishing port to attract industrial fish landing and further fish processing within the country. Significant fish processing are done overseas and exports of these fish products are not recorded as exports of The Gambia but as exports of these foreign countries. They are processed, packaged, labeled and branded as fish products of

these foreign countries depriving The Gambia of much needed foreign exchange, employment and technological spillover through linkages along the supply and value chains. Most of the industrial fish enterprises from Greece, Spain, Korea, China and Italy licensed in The Gambia also operate in neighbouring countries of Senegal, Mauritania and Guinea Bissau enabling these foreign vessels to fish in The Gambian waters and transport the catches to these countries or overseas for processing and exports. This explains the poor fish export revenue base in The Gambia (see Figure 3.7) and unless this is sorted out, the country will continue to lose grounds in its fish production and exports potentials.

It is important to note that fish exports from The Gambia and Uganda are either unprocessed or semi-processed with further processing carried out in overseas markets. The absence of value addition in the two industries has led to loss of increased export earnings, employment creation, tax revenue, industry deepening, among others thus limiting the fish industry development in the two economies.

#### **3.4.6 Fish Exports to Total Exports**

The level of Gambia's fish exports to total exports grew rapidly from 6.5% in 1990 through to 18.6% in 1999. It grew to its highest at 26.1% in 1997 due to significant drop in total exports. Fish exports to total exports were high at 20.69% in 2000 before declining sharply to its trough at 0.31% in 2004 and 0.33% in 2006 explained by considerable drop in fish export volume and value associated with targeting high valued fish species for exports. It picked up in 2007 at 2.7% and 1.8% in 2008 before surging up to 3.9% in 2010. The erratic trend is explained by weak developed fishery industry dominated by artisanal fisheries with severe operational and capability constraints. Unlike Uganda, there was no fish export crisis in The Gambia to trigger technological and human resource developments coupled with much collaboration in the industry to boost industry production and exports.



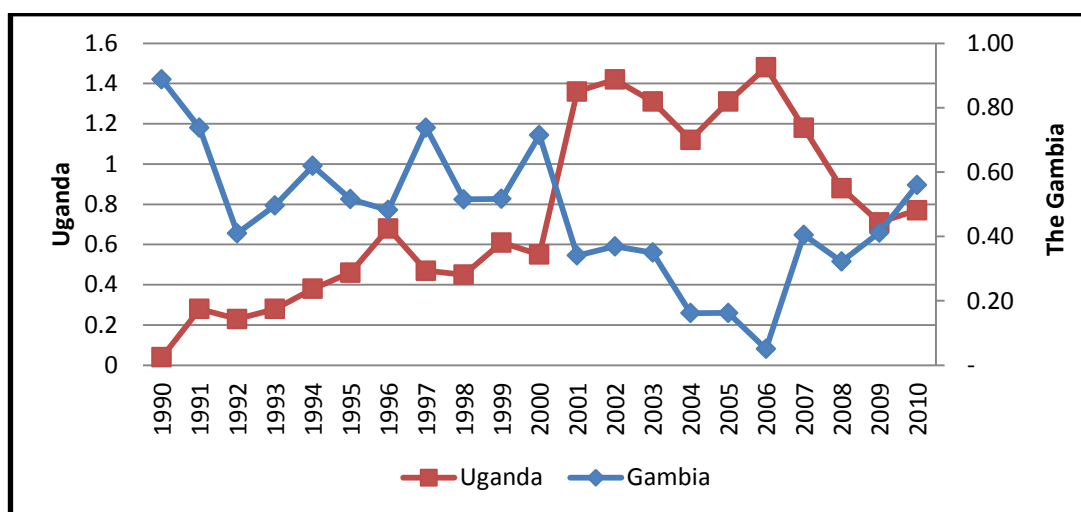
**Figure 3.8: Fish Exports to Total Exports, Uganda, The Gambia, 1990-2010**

Source: Uganda Bureau of Statistics (2011), Gambia Bureau of Statistics (2011)

Uganda graduating from EU fish import ban of 1997 – 2000, its fish exports to total exports jumped from 7.9% in 2000 to record more than double at 18.3% in 2001 and to its highest at 18.7% in 2002. It experienced a consistent decline through to 2004 but rose up again to 14.1% in 2006 due mainly to threats of overfishing. The level further dropped sharply through to 4.7% in 2010 explained by decline Nile perch exports, increasing total exports (the denominator) and competition in global markets for fish products. Dagaa and Nile Tilapia species continued to fill the export basket with overfished Nile perch but these are not attracting high values as Nile perch in EU and other overseas markets (Fulgencio, 2009:433-437 and Abila et al, 2000:3-4).

### 3.4.7 Fish Exports to Gross Domestic Product

Fish exports to GDP in the two countries show varying levels throughout the period from 1990 through to 2010. The Gambia recorded an improved 0.89% in 1990 above Uganda's 0.1% due to relative higher export value.



**Figure 3.9: Fish Exports to GDP, Uganda, The Gambia, 1990-2010**

Source: Bank of Uganda, (2011), Central Bank of The Gambia, (2011)

This continued till 1992 when both countries converged through to 1994. From 1995 and 1996, Uganda expanded its level recording 0.51% and 0.71% respectively relative to The Gambia's declined level of 0.48% and 0.52% during the same period respectively. The period 1997 through to 2000 represents the fish export crisis in Uganda, reporting a drop from 0.71% in 1996 to 0.49% in 1997 through to 0.55% in 2000. Growing out of the crisis, 2001 recorded a sharp growth as shown in Figure 3.9. Uganda's level declined through to 2004 at 1.08% due to a relative greater expansion in GDP (the denominator) by 20% compared to upsurge in fish exports of just 2.86%. It continued to grow thereafter to its highest level of 1.4% in 2006 when Uganda realised its highest fish export ever at the level of USD147.04 million. From this level, it consistently dropped through to 0.69% in 2009 due to declining fish exports associated with overfished Nile perch (the main commercial fish species), competition in international markets for fish and fish products and an increasing GDP levels. The level finally recorded a marginal growth in 2010 at 0.74% of GDP.

The Gambia's levels have been quite erratic, attaining its highest level in 1990 at 0.89%. It dropped thereafter with its trough at 0.05% in 2006 due to considerable decline in fish exports. This is explained by the low export volume targeting high valued fish species and the high number of industrial fish vessels landing their catches overseas. Both the value and volume of fish exports nose-dived through to 2006 due to acute supply-side constraints. It rose thereafter to 0.71% in 2010 associated with improvements in fish export quantities.

### **3.4.8 Industry Employment and Earnings**

Fish processing and exporting sub-sectors of the industry benefitted substantially from the enhanced fisheries regime in Uganda. It provided direct jobs for 153,066 fishermen in 1990 up to 141,674 in 1994, 175,890 in 2004 and 199,242 fishermen in 2008 (Fulgencio, 2009:435; Jansen, 1999; Abila et al. 2000). By extension, the sector has provided employment to vast number of people in related fisheries activities in Uganda to 700,000 people in 2002 to 803251, 1150,000 and 1020,000 in 2005, 2006 and 2008 respectively (Keizire, 2004; Fulgencio, 2009). The sector employs about 3.5% of Ugandan population in 2008 relative to 2.4% in 2007 for The Gambia (GBOS, 2010).

Direct employment of fishermen in The Gambia reached 1834 in 2002, grew to 2649 in 2005 through to 4844 and 5301 in 2007 and 2009 respectively. Total industry employment in The Gambia reached 18521 in 2002 through to 33421, 39086, and 43251 in 2005, 2007, and 2009 respectively (Mendy, 2009; Department of fisheries, 2011).

The Gambia's labour productivity is associated with predominant unskilled labour with artisanal fisheries the major players in the sector, explaining the country's low export capabilities and competitiveness.

In Ugandan artisanal fisheries sub-sector, fishing earns the highest incomes followed by local processing while fish trading earns the least as shown in Table 3.2 (Abila et al. 2006:4). Motorised boat fishermen generate more earnings than non-motorised fishing due largely to their capacity to go in deep seas and catch in large quantities. Among the processors, those engaged in smoking earns more than sun-drying processors. In trading, bicycle operators and market stallholders have similar earnings with bicycle traders earning slightly higher as shown in Table 3.2.

**Table 3.2: Average Monthly Earnings by Sub-Sector, Uganda, 2004**

<b>Fishing</b>	<b>USD Earnings</b>
Motorised	257
Non-motorised	110
<b>Processing</b>	
Smoking	179
Sun-drying	126
<b>Trading</b>	
Bicycle trader	25
Market stall-holder	24

Source: (Abila et al 2006:4; Keizire, 2004)

Different types of fishermen have different earnings level with truck beaches enjoying higher incomes relative to non-truck beaches due to more readily available market and higher prices of fish offered by fish factory agents (Jansen, 1999). Table 3.3 shows the disparities in earnings by species with Nile perch earning highest income followed by Dagaa species while tilapia earns the least. Nile perch is the highest valued fish species in Uganda and constitute over 60% of fish export basket.



**Table 3.3: Average Earnings By Target Species, Uganda, 2005**

	<b>Truck beach</b>	<b>Non-truck beaches -USD</b>
Nile perch	473	384
Dagaa	296	102
Tilapia	97	93

Source: Fisheries Resources Research Institute (FIRRI), (2006)

In the fisheries sector, processing plants earn the highest compared to the middlemen/factory agents and fishermen. Table 3.4 shows the industrial processors earning highest followed by middlemen then fishermen. There are disparities in earnings between boat owners and crew members in both countries. The fish boat owner provides the investment, management and maintenance of fishing units. The boat is checked on arrival at the beach for catches, sales, payment of the crew and input needs such as fuel, fish nets and boat repairs.

**Table 3.4: Prices of Nile Perch Along The Market Chain, Uganda, 2003**

	<b>Price (USD \$/kg)</b>
Fishermen	1.0
Middlemen/factory agents	1.1
Processing factories (FOB fish equivalent)	2.1

Source: Uganda Fishers Processors and Exporters Association UBOS, FIRRI, (2003)

The average number of crews on a boat range from 3 to 5. The most common method of payment is dividing the sales into two equal portions between boat owner and the crews after deducting the expenses. The share of the crews is further divided among the crew members leaving each crew member with little earnings compared to the boat owner (Abila et al. 2000, Njie 2007). Information on Tables 3.2, 3.3 and 3.4 are only available on Uganda. The same analysis could not be carried out on The Gambia due to unavailable data.

### **3.5 Risk Factors**

The two-country study has different fish resource endowments from marine coastal fishing along the Atlantic Ocean and freshwater of The River Gambia to Lake Victoria and other smaller lakes<sup>46</sup> in Uganda. Uganda enjoys 45% of Lake Victoria<sup>47</sup> with total area of 68,800km (Keizire, 2004). The risk factors associated with fishing in Lake Victoria and the water resources of The Gambia are examined under the following sub-sections.

#### **3.5.1 Ecological and Environmental Costs**

It is important to note that export of endowed natural resources like fish involves social and environmental costs that are not normally accounted for in national economic accounting. The over-exploitation of fisheries resources in Europe has increased their dependence on the developing world for fish and fish products. The last few decades have witnessed increased fish exports by developing economies reaching 70% of global trade in fish and fishery products (Kurien, 2004; Bene, 2008 and Watkins, 1996). The poisoning of Lake Victoria by artisanal fishermen to capture fish had serious ecological and environmental effects on the endowed lake resources, beaches and fishing communities. The excessive overfishing under fishing agreements with EU and bilateral fisheries agreement with Senegal also had serious effect on the future fish resources in The Gambia. The illegal capture of juvenile fish in marine waters of The Gambia and the Lake Victoria increase concerns for the future fish resources and puts in danger the ecological and environmental conservation.

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<sup>46</sup> Lake Kyoka, lake George, lake Albert and lake Edward

<sup>47</sup> 49% occupied by Tanzania and Kenya with 6%

### **3.5.2 Cost of Fish Export Crisis**

Nile perch fisheries require strong, new synthetic multi-filament large mesh gill nets which are imported from overseas (Harris et al. 1995). They are very expensive costing about US\$6,000 in Uganda and US\$7,000 in The Gambia compared to the traditional and locally manufactured gill nets (Abila, 2001:6; Fulgencio, 2009:435; Department of Fisheries, 2011). Most local fishermen cannot afford to purchase these equipments. As a result, most artisanal fishermen are felt marginalised, out of job or manage to become crews in new establishments due to decline in artisanal fishery earnings. Therefore, huge investment to acquire high-powered boat engines, modern mesh-sized gears and high-tech machinery are required to stay and grow in the industry. With continuous marginalisation due to fish industry industrialisation in Uganda, led many artisanal fishermen to engage in illegal fishing methods using poisonous chemicals (salmonellae bacteria) to catch fish on the lake as a coping strategy (Fulgencio, 2009:436-437; Namisi, 2005). This coupled with cholera outbreak in the late 1990s landed Uganda and the riparian states sharing Lake Victoria into European Union fish import ban. The cost of the ban was substantial estimated at about USD30 million (Keizire, 2004; Namisi, 2005) in export revenues, high fish imports, job losses, drops in household income, environmental damage, cultural norms and fish food insecurity (Fulgencio, 2009:436-437; Keizire, 2004). Six out of eighteen fish factories collapsed during the crisis resulting to massive unemployment for processors and thousands of women employed in the processing factories. Many processing enterprises were operating below 50% capacity with additional three processing factories – Gomba, Uganda Marines and Byansi forced to suspend operations (FIRRI, 2007), aggravating the situation in the Uganda fisheries industry.

Though The Gambia, unlike Uganda had no crisis in the industry but the continuous capture of juvenile fish and limitations in meeting SPS quality standards, has constrained efforts to exploit opportunities in global fish trade. Until artisanal fisheries is strengthened and industrial fisheries attracted in the industry to transfer knowledge, huge investment, policy support, human resource skills and other linkage spillovers, the industry will continue to face severe limitations in fish production and exports and by extension its contribution in the economy as a whole.

### **3.5.3 Overfishing**

Accordingly, there are seasonal variations in Lake Victoria fish scarcity during the dry season and recovering during the rainy season but overfishing in the lake had been key in the decline of fish stocks (FIRRI, 2007). The lucrative fish exports put pressure on the lake, thus coming with a price to pay in terms of fish food scarcity and price hikes locally. There are too many fishermen chasing too few fish remaining in the lake, consequently, the daily catch per fishermen declined (Namisi, 2005:6). This has forced many fishermen to resort to illegal and inappropriate practices of catching juvenile fish affecting the future fish resources. Controlling overfishing, according to Jansen (1999) and Abila et al. (2000:17-18) is the cornerstone of sustainable fishing.

It is reported that a third of Nile perch landings on various beaches of Lake Victoria are juvenile (Abila et al. 2000; Jansen, 1997 and Owino, 1999), raising long-term sustainability concerns. Nile perch's availability in the domestic markets is mainly the ones rejected by the factories either due to immature fish or poor quality. Juvenile fish continues to be fished despite prohibited by law in both countries, raising serious questions of effective monitoring and enforcement. Intensive surveillance activities are required to curb such

illegal acts. The fishing agreements in The Gambia with EU, China, Korea and Senegal led to uncontrolled fishing with no direct benefit to the host economy, putting its future fish resources at greater risk. The demersal fish species are overfished as they attract higher values in overseas markets forcing many fishermen to turn to juvenile fish capture.

#### **3.5.4 Food Security**

Lake Victoria, the second largest fresh water lake in the world and the largest in Africa, has undergone significant development with the greatest impact being the industrialisation of fisheries industry which led to the influx of foreign industrial enterprises from the East African region and overseas to exploit opportunities in Uganda. However, this transformation succeeded in making fish products less accessible to the local communities as large proportion of high quality fish are exported to meet overseas' market demands. Jansen (1999:12) and FAO (2005) warned the detrimental effects of too large quality fish export against the local people dependence on it for food, income and livelihood. The fish available in local markets are either of poor quality or smaller size and other fish species that do not fetch higher values in oversea markets.

Most fishermen are contracted to sell their catches directly to factories or their agents as they offer higher prices compared to local retail markets. This reduces the role of local middlemen and retailers making high quality fish less available for local consumption. The factories sell the processed fish products in international markets principally to EU, USA, Middle-east and Japan. This has pushed prices up beyond local people leading to diminished livelihoods and fish food insecurity among the fisher-folk and local communities for whom fish remains a traditional source of animal protein (Jansen, 1997). Nile perch costs Uganda Shillings (Ushs) 800 -1000 per kilo in 2000 increased to five fold in five years costing Ushs 4000-5000 per kilo (Fulgencio, 2009:434).

Fish species such as mudfish and haplochromines are increasingly being harvested, used as food bolts to catch Nile perch. The withdrawal of these species from the local markets and by extension human consumption has exacerbated fish food insecurity to poor people who rely on it as a traditional source of fish protein.

The remains of the filleted Nile perch (called frames) after processing were earlier considered a waste at factory level. This forms an important diet for many local people. The animal feed manufacturing industry emerged in the supply chain to further process the frames and crushing animal bones as fishmeal. These firms compete directly with traditional processing units who processed the frames for human consumption. Jansen (2000) noted that 17,000 tons of Nile perch frames were processed to yield 4,000 tons of fishmeal in 2000. This has further constrained local communities' access to frames as food

In The Gambia, high quality fish species are targeted by exporting enterprises for exports with low quality destined for domestic markets. The limited industrial fisheries purchase high quality fish species from artisanal fishermen to supplement their export tonnage target. With artisanal fisheries dominance in the industry, the availability of fish in the market depends largely on catch capacity and weather conditions. With huge obstacles faced by artisanal fishermen to meet overseas export quality demands, acute lack of financial access and the limited industrial activities, among others have limited fish supply to the domestic market and export earnings despite the huge marine and river fresh water fish resources. Low capabilities of local firms, weak industrial activity, poor fishing infrastructure coupled with fish agreements with foreign countries and bilateral fish relations with Senegal explain how The Gambia is failing to tap its natural water fish resource endowments to the fullest. The weak capabilities of artisanal fishermen do occasionally lead to fish scarcity in the

market associated with their poor catching capacity as they could not reach high seas and weak fishing gears.

### **3.5.5 Tragedy of the Commons**

The Tragedy of the Commons championed by Hardin (1968:1243-1248) is the most common analytical model used to describe overfishing in countries' exclusive economic zones. Tragedy of the Commons is linked to cattle grazing a common pasture with the possibility of overgrazing with additional cattle (Namisi, 2005:8). The theory can also relate to pollution with individual cost of waste discharge considered low but with large population, it becomes costly and havoc to the community and the environment. Hardin (1968:1243-1248) claims that the ever-increasing human population, with each trying to maximise gains is subject to a finite planet, environment or resource. The tragedy comes as the usage of each common goes beyond the optimal level. In this regard, the analytical model could also relate to population problem with individual family size not a concern to the public but only to a point, after which the society bears the cost. A rational parent tries to have fewer dependents due to increasing costs of family care for large number of children. However, with population growth and impoverished parents' inability to take care of their families then the society bears the cost of welfare support, hence the aspect of tragedy of the commons come into play (Hardin, 1968:1244).

In this study, we relate 'the tragedy of the commons' with overfishing of Lake Victoria and The Gambia's EEZ. Unlike land with limited access to carry out agricultural activities, marine and fresh water resources are an open access to all. There is seemingly abundant fish in an endless ocean with open access to all to the exclusion of none. However, the law of the sea of 1982 changed the long-standing open sea regimes into 200 miles as private

property of coastal states. Despite the EEZ regimes, coastal states continue to experience problems associated with ‘the tragedy of the commons’ model. Most coastal states failed to implement effective fisheries management policies thus the continuous unsustainable and illegal fishing practices persisted to the detriment of socio-economic and environmental degradations (Namisi, 2000; Kaczynski et al. 2002; Fulgencio, 2009:435-436; Njie, 2012; Mendy, 2009). In most instances, government policies are in place but shortfalls in monitoring and enforcement to ensure compliance remains a major challenge. These policies are often largely ignored or evaded by local fishing communities. The weak surveillance of The Gambia’s water territories led to illegal fishing by foreign vessels and local fishermen increasingly on juvenile fishing putting pressure on wild fish species and future resources.

Undoubtedly, the same concept of fishing in global fisheries of marine origin is also true of inland freshwater fisheries of Lake Victoria. Decades of unsustainable fishing practices associated with ‘the tragedy of the commons’ model, the pressure of fast population growth and a last resort for many unemployed people resulted to the depletion of fisheries resources. The social and economic costs became enormous as mentioned above with decline export revenues (See Figures 3.7 and 3.8), low household incomes, declines in catches (Figures 4.8 and 4.9) and further environmental cost to the community. The government’s restrictions on fish gear size, catches and responsible fishing are often ignored by fishermen and they continue to overfish the once-productive resource their livelihood depends on. In line with ‘the tragedy of the commons’, the fish water resources are becoming highly scarce, requiring careful management through appropriate policies, regulations and enforcement.



### **3.6 Summary**

This chapter established the theoretical foundation of this study as well as the issues to which this thesis is focus. Firstly, it has revealed that supply-side constraints as shown in Figure 3.1 adversely affect fish SMEs' performance in terms of production, value addition, exports, participating and competing in global fish trade. Secondly, the systemic quad of Rasiah (2007) is discussed highlighting weak systemic pillars that go to affect the two economies' ability to stimulate fish production, exports, employment and global competitiveness.

The discussion in this chapter also revealed that much of the literature on the fishing industry has focused on the super exporters of Norway, Chile, Vietnam and China with sparse literature articulating the contribution of the industry to the livelihoods of poor countries. This has stifled the understanding of fish industry's importance in LDCs even though fish export markets have become increasingly important in driving production in these countries.

The study discussed the need for huge investments in the industry to realise full benefits of fish production, exports and other livelihood supports. It is noted that international trade benefits economies differently based on level of firm and national technological capabilities. Those with enhanced capabilities are able to increase production, exports, value addition and employment, denying others lacking similar capabilities.

The study also discussed the threat of overfished capture fish with increasing illegal fishing of juvenile fish and the use of inappropriate fishing gears. Diversifying into fish farming can provide a viable coping strategy to meet sufficient fish supply for both domestic and overseas demands.

The improved physical and knowledge infrastructure, adapting technologies in the fish processing chain coupled with stable and enabling macroeconomic environment helped propelled fish exports to sophisticated markets in Uganda relative to The Gambia. This is associated with greater public sector-led support and institutional developments coupled with increased access to formal finance, greater industrial fishery activities and network cohesion making the difference in outcomes in the two countries.

In The Gambia, broad strategy and supportive measures are required to realise full benefits of increase fish production, exports and adopting technologies in the supply chain. Substantial surpluses exist in The Gambia to increase foreign exchange earnings, value addition and diversifying the economy from reliance on groundnut exports and tourism. The low fish value addition in the two countries has led to considerable loss of incomes, export earnings, taxes, employment and industry growth, thus limiting the industries' significant contributions to development. This can be achieved through addressing supply-side constraints and systemic pillars coupled with tapping knowledge infrastructure and boarder access to productive resources including finance. It is important for The Gambia to review bilateral fisheries agreements with Senegal and EU to enhance fish industry's contribution to socio-economic development. Effective monitoring and enforcement of fisheries laws to control illegal fishing, protect the two countries' EEZ and further upgrade fisheries technology is a way forward if the industry is to play its crucial role in the economy.

## **CHAPTER 4**

### **INSTITUTIONAL CHANGE, TECHNOLOGICAL CAPABILITIES AND FISH EXPORTS**

#### **4.1. Introduction**

Most works on fish in economic growth have focused on the developed countries. While developing countries, such as, Chile has enjoyed substantial technological learning and upgrading, the accounts are still limited to middle income countries. This study tries to fill the gap by examining the industrial experience in the least developed countries of Uganda and The Gambia. Evidence shows that institutional development to solve collective action problems is critical to stimulate technological capability. Although Uganda still lacks participation in the high value added segments of product development, R&D and marketing, it has benefited from government policies in promoting industrial fishing and support to overcome the hurdle imposed by a ban on fish imports by the European Union as the landing, packaging and testing centres responded by acquiring internationally acceptable sanitary standards. Without a focus on institutional development, the artisanal orientation of fisheries in The Gambia prevented the industry from technological upgrading. As a consequence, the much of the fish captured from The Gambia either landed in neighbouring countries or carried neighbouring country names when exported. Hence, the fishing industry in The Gambia lacked the institutional support to respond to pressures from large markets such as the European Union.

Fish is an important economic commodity in Uganda and The Gambia. Fish from the landlocked country of Uganda comes mainly from fresh waters of Lake Victoria, the White Nile being the most important. The fish resources in The Gambia come from both the sea

(Atlantic Ocean) and river (The River Gambia). Several attempts in the past have been made by the governments of Uganda and The Gambia to promote technological upgrading to support fish exports. Constrained by inappropriate policies, weak institutions, poor infrastructural support, weak intermediary organisations and unstable macroeconomic environment, both countries had until the late 1980s faced great difficulty in stimulating technological upgrading to support exports. However, in the 1990s, Uganda and The Gambia have taken different technological trajectories in their fish exports. Improvements in the macroeconomic conditions helped propel impressive Gross Domestic Product (GDP) growth rates in the late 1990s. However, this did not induce rapid technological change in the fishery sectors of the two countries. With strong integration through industrial fishing in global markets, external pressures acted as the spur in driving technological upgrading in Uganda. In contrast, the dominant role of inward-oriented artisanal fisheries in The Gambia denied the country similar pressures to institute technological upgrading.

In Uganda, the trigger took place following the European Union's ban on fish imports from Lake Victoria region that destabilised the industry and the livelihood of thousands of fishermen and other players dependent on the industry. The response to technological change in Uganda was unprecedented with effective interactions stretching across the industry – input suppliers, fish processing and exporting firms, overseas importers, government policymakers, universities, international development agencies and the private sector association - Uganda Fish Processors and Exporters Association (UFPEA). During the period of fish export crisis of 1997- 2000, the actors in Uganda upgraded their standards and processing systems to meet the EU health, sanitary and food safety requirements. The nutritional value and quality, the organoleptic appearance of the fish, and the conditions under which fish is produced and traded locally and overseas were enhanced significantly

(Kiggundu, 2006: 301). The knowledge and techniques that were introduced during this period were in existence elsewhere but new to the industry, which helped to galvanise technological change that enabled fish processing firms to send high quality fish products to sophisticated global markets.

However, the response by The Gambia was slow with the government collaborating with the United Nations Industrial Development Organisation (UNIDO) and African Development Bank (AfDB) in 2009 to upgrade the laboratory and landing sites, train Fisheries Department officials and equip landing sites with basic infrastructure for testing fish quality to ensure food safety prior to exports released to EU market.

This study attempts to examine the development of the fishing industry in Uganda and The Gambia focusing on institutional and technological developments that enabled fish firms in Uganda to acquire, learn, adapt and upgrade technologies to enhance export competitiveness, while the lack of it has restricted technological change and export expansion in The Gambia. This chapter addresses the research question two by assessing the level of institutional and technological developments in both countries as they matter in accessing resources, fish production, processing and exports to lucrative and sophisticated markets.

Other factors vital to catch-up phase such as macroeconomic stability, political and business environment, legal systems to provide a reasonable level of contractual enforcement, protection of property rights and the quality of human resource skills, are also examined. The next section will cover a brief background of fisheries sectors in the two countries.

We take Katz's (2004)<sup>48</sup> argument to examine in the next section the macroeconomic environment facing fishermen in the two countries. The third section analyses the factors driving technological learning and upgrading in the fisheries sector focusing on upgrading and export competitiveness. The fourth section looks at the developments of technological capabilities in the two countries and its impact on fish exports. The final section presents the summary of findings.

## **4.2 Background of the Fisheries Sector**

This section presents the background of the fisheries industry in the two countries. The main fish resources are derived from the lakes in Uganda and the river and the sea in The Gambia.

### **4.2.1 Uganda**

Nile perch (*Lates niloticus*), Dagaa and Nile Tilapia (*Oreochromis niloticus*) comprised of Uganda's main fish export basket with over 60% coming from Lake Victoria (second largest fresh water lake in the world and largest in Africa) with an area of 68,800 square kilometers shared by three East African countries- Kenya with 6% share of the lake,

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<sup>48</sup> From a quasi-cottage industry, salmon farming has grown to a professionally managed sector with skilled local and foreign firms that altered considerably production and international marketing practices. The cumulative effect of the transformation led to Chile reaching technological frontier stage as one of the major salmon farming countries. With increase in size and complexities, suppliers of inputs and service firms emerged to build a strong industry cluster. The major transformation in the industry structure came about through acquisitions and mergers resulting to rapid internationalisation process. Undoubtedly, sound macroeconomic management is a sine qua non for success, however, it is crucial for public sector to address technological, institutional and economic complexities in exploiting the rich-natural resource endowments if a sustainable growth and development is to be realised.

Tanzania with the largest portion of 49% and Uganda with 45% (Keizire, 2004:2)<sup>49</sup>. The other lakes providing fish resources include Lake Albert with 5270 km square, Lake Kyoga 2700 km square, Lake Edward 2300 km square and Lake George 250 km square along the River Nile (Keizire, 2004).



**Figure 4.1: Map of Uganda Showing Major Water Bodies**

Source: Keizire (2004:2) showing key fish resource areas of Lake Victoria (producing 60% of total fish exports), lakes Kyoga, Edward, George and Albert.

Other fish species of commercial value include Sardine or Mukene (*Rastrineobola argentea*), Bragrus, clarias, protopterus, Barbus, synodratis, momyrus, Alestes and labeo. Fish is the largest agricultural export commodity in Uganda (Hammerle et al, 2010) providing livelihood support to over 2 million people. It is also an important animal protein source. In Uganda, the sector employs over 700,000 people in 2002 (Nsimbe-Bulega et al. 2002) to over a million in 2008 (Fulgencio, 2009:435). The fisheries sector includes several

<sup>49</sup> Uganda has four other smaller lakes – lake Albert, lake George, lake Kyoka and lake Edward, all endowed with large quantities of fish resources. Lakes George and Albert spread to DRC Congo as shown in Figure 4.1.

important players from fishermen, collectors, distributors, fish gear producers, boat builders and those in research, training, extension services, processing and exports.

Through the support of FAO in the 1950s to assess the stock of Lake Victoria and in early 60s, Nile perch was introduced to the lake to feed on Haplochromines, forming close to 80% of lake resources at the time (Geheb, 1997). From 1983 to 1989, Uganda's fish landings rose from 1400 metric tons to 100,000 metric tons, rising further to 219,356 metric tons in 2000 through to 400,000 tons in 2009 (Namisi, 2001 and FAO, 2010). Ugandan fish exports also rose from USD1.9 million in 1990 to USD5.3 million in 1991 and USD34.4 million in 2000 further to USD147 million in 2006 before dropping to USD130.6 million in 2010 (Bank of Uganda, 2010). The increase in volume and exports were due to collaborative efforts of public and private agencies after the fish export crisis to meet overseas sanitary requirements and supportive sector policies that attracted international regional foreign firms into Uganda to exploit opportunities in the fish industry.

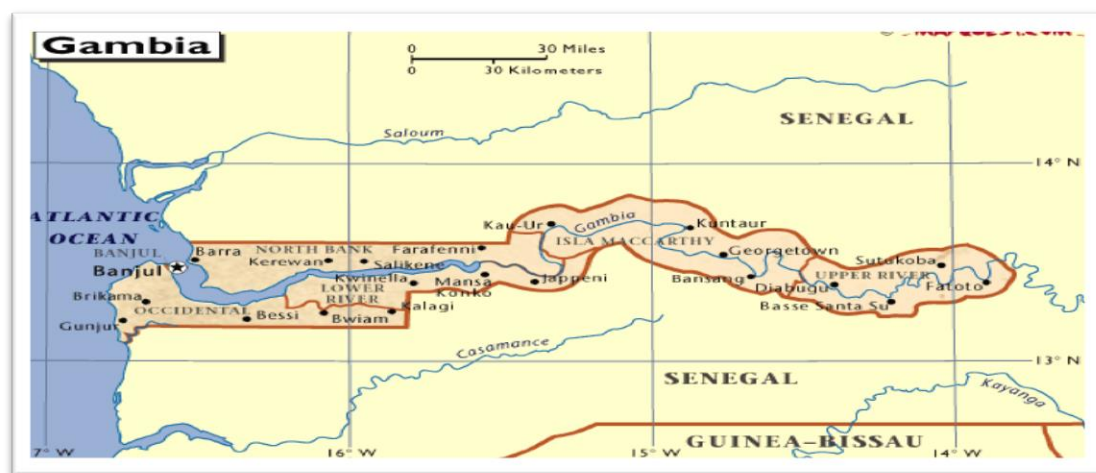
Private industrial fish processing firms only started in Uganda after much improved economic and political outlook in the late 1980s to early 90s. Uganda government policy introduced in 1991 ban the export of unprocessed Nile perch which led to increased regional investors from neighbouring Kenya to commence operations in Uganda. This coupled with improved macroeconomic condition and increased Nile perch landings, attracted private sector responses to new business and export opportunities in Ugandan side of the lake. The move by many regional fish processing firms in Kenya and overseas to relocate to Uganda could not have been achieved without the deliberate policy of Government of Uganda to ban exports of unprocessed fish (Kiggundu, 2005, 2006, Chandra et al. 2006).



The private fish processing firms started with 3 firms exporting frozen ( $-18^{\circ}\text{C}$  or below) fillets to EU markets in 1990 rising to 20 fish plants but only 14 became operational. The initial exports of fresh or chilled ( $0.5^{\circ}\text{C}$  to  $1^{\circ}\text{C}$ ) fish fetched better prices in March 1990. During the fish export crisis of 1997 – 2000 in Uganda, nine firms survived the EU ban and the industry expanded later with the arrival of six new private processing firms (Kiggundu, 2005, Fulgencio, 2009; Rogers et al, 2009).

#### 4.2.2 The Gambia

The fisheries waters of The Gambia are characterised by marine Atlantic Ocean and an inland fresh water of the River Gambia. It has territorial sea extending to 12 miles with an Exclusive Economic Zone (EEZ) of 200 miles long and 40 miles wide from the geographical baseline (Department of Fisheries, 2010). The continental shelf area of The Gambia is approximately 4000 square kilometres and an EEZ of nearly 10,500 square kilometres.



**Figure 4.2: Map of The Gambia Showing Major Water Bodies**

Source: The Gambia Bureau of Statistics showing The River Gambia sourced from Fouta Djallon Highlands in Guinea Conakry, streams and Atlantic Ocean marine resources of The Gambia.

The River Gambia is an estuary with its source in the Fouta Djallon highlands in the Republic of Guinea Conakry, has a total length and its tributaries of 2,500km and the river's length in The Gambia is 480 km (Department of fisheries, 2011:2). In The Gambia, over 200,000 people depend on fish for livelihood support and employing over 40,000 people in the industry in 2009 (FAO, 2010; Department of Fisheries, 2009). Fish remains a vital source of animal protein in the country.

The sea corridor has over 500 marine fish species in demersal and pelagic in Gambian waters and about 70 fish species of commercial significance (Department of Fisheries, 2009). The fish resources are estimated to range from 300,000-350,000 metric tons (Mendy, 2009:3) with shrimps, catfish, cephalopods, cuttlefish, tilapia and tuna species making up the fish export basket. The fish resources of The Gambia are under-exploited and improvements in fishing technology and techniques, fish landings and exports are expected to increase into many folds.

Commercial fishing started in early 1960s in The Gambia with both foreign and artisanal fisheries accessing coastal marine waters and inland river resources. The declaration of EEZs in 1982 law of the Sea enabled most West African coastal states including The Gambia to enter into fishing agreements with foreign countries – EU, South Korea, China, Greece, Spain, Italy, among others. This resulted to an intensive exploitation of fisheries resources through joint venture with local entrepreneurs. The commercialisation of fisheries products encouraged players to seize new opportunities by investing in modern fleets and processing plants in response to the growing global demand for fish and fish products. The fishing fleets have grown rapidly and equipped with relevant technologies which increased their catching power. It is important to note that foreign fishing fleets came in through the

EC/Gambia fishing agreements (1987-96), bilateral agreements with Japanese, Reciprocal Maritime Fishing Agreement with Senegal and through joint ventures with local firms.

By an Act of Parliament of 1991, the Fisheries Department was mandated to plan, develop and manage fisheries resources within the jurisdiction. The fisheries monitoring, control and surveillance (MCS) Unit is charged with the policing of fisheries waters of The Gambia assisted by The Gambia Navy which provides sea patrols using engine boats. However, these boats are deficient in many aspects to effectively carry out fisheries surveillance. The MCS unit is weak lacking funds and poorly equipped to carry out its mandate of inspecting the territorial waters of The Gambia. The two Navy's patrol boats lacked coastal radar for effective surveillance and with no access to Vessel Monitoring System data from overseas vessels undermine its vital role to police The Gambian waters.

Fish production is dominated by artisanal fishermen in The Gambia<sup>50</sup> with severe limitations due to sanitary conditions and supply-side constraints including weak infrastructure, limited industrial fishing, weak meso-organisational support, low human resource skills, poor equipments and weak government policy support, among others. Fish catch recorded 39,970 metric tons on 1990 with 26,397 tons (66%) captured by artisanal fishermen declining to 27,736 tons in 1995 (75% artisanal fisheries). It rose to 35,762 tons in 2000 dropping marginally to 34,785 tons in 2005 (see Figure 4.3) before increasing to 49,063 tons in 2009 (Mendy, 2009). Artisanal fishermen capture equaled 74.1% in 2000 surging up to 86.7% in 2005 and again to 93.5% in 2009 manifesting the dominance of artisanal fisheries relative to an underdeveloped industrial fishery. However, export

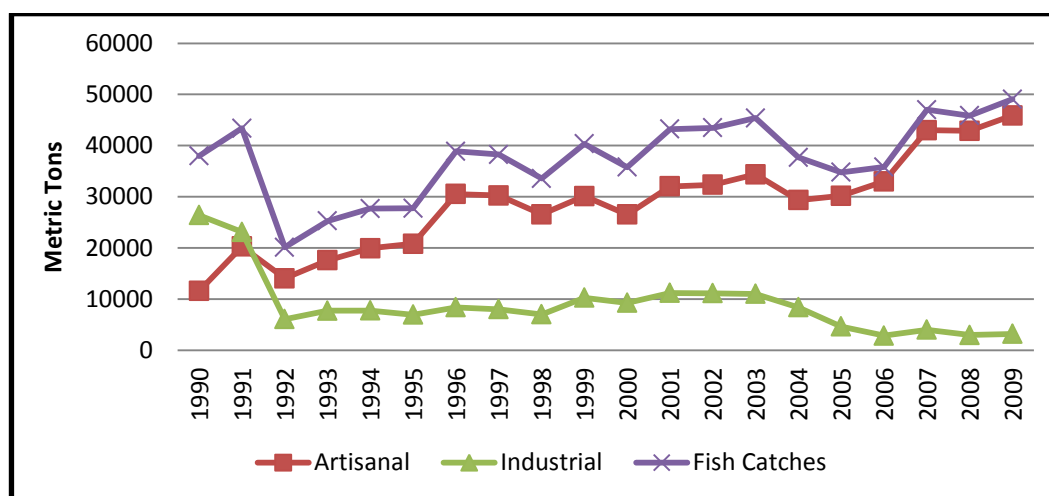
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<sup>50</sup> Senegalese, Malian and Ghanaian immigrants play a significant role in The Gambia's artisanal fishery

volumes mainly smoked, dried and salted fish was only 1449.3 tons in 1990 rising to 1817.1 tons in 1995 to a low of 905 tons in 2002.

It recorded its lowest at 513 metric tons in 2006 due largely to targeting high quality fish species that attract higher prices in overseas markets before rising to 5,290 tons in 2010 as shown in Figure 4.3. The low export volume is linked to weak capabilities of artisanal fisheries to export to sophisticated markets. It is the industrial fishery that has the financial outlay, plant and machinery, ability to attract high skilled personnel and technology to drive the fish export market. The lack of it in The Gambia despite its natural fish resource endowments<sup>51</sup> can only be considered a lost opportunity.

Figure 4.3 shows the artisanal and industrial fish production with increasing levels of the former due to under-developed industrial sector.



**Figure 4.3: Fish Production, The Gambia, 1990-2009**

Source: Department of Fisheries (2010)

<sup>51</sup> Accordingly, the natural resource itself does not provide a significant advantage, the physical and human capital have to be developed to achieve competitive advantage. This is prevalent in SSA where despite trade liberalisation, the region could not benefit from the adaptation of modern technology to boost production and exports. Lall (2003) argued that the difference in per capita income between countries is the technological gap.

The low export volumes are also associated with Sanitary Phyto-sanitary (SPS) and Hazard Analysis Control Critical Points (HACCP) requirements which artisanal fishermen find difficult to comply with. Export values also show erratic levels from USD2.33 million in 1990 declining to USD1.68 million in 1995. It grew to USD3.35 million in 2000 falling to its trough at USD0.34 million in 2006 (due mainly to fish exporters targeting high value fish coupled with weak artisanal capabilities) before rising further to USD5.93 million in 2010 (GBOS, 2011).

The Gambia does not have a dedicated fish landing site for industrial fisheries<sup>52</sup> until 2009, as a result high value fish are transported to neighbouring Senegal and overseas ports where such facilities are available and when processing firms in The Gambia could not absorb all the fresh fish captured. The dried shark fish are exported to Ghana and most West African sub-region while smoked and salted fish are exported to Guinea, Mali and Cameroon. A Shark fin and fish maws are sent to Asia, mainly Hong Kong.

Industrial fish exports target shrimps, sole, snappers, tuna, cuttlefish, octopus, tilapia among others, have plummeted over the years as shown in Table 4.4 and Figure 4.9 due mainly to four key problems (Department of Fisheries, 2009):

- i. The demersal fish stocks are threatened by over-exploitation associated with bilateral fish agreements with Senegal and EU, higher licence fees restricting legal industrial vessels establishments and the increasing illegal fishing.
- ii. Fish processing is constrained by increasing cost of electricity and finance

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<sup>52</sup> The few industrial firms target high quality fish species for exports. With poor landing facilities for industrial fisheries much of the fish captured in The Gambia's EEZ are landed overseas denying the country of much needed foreign exchange, employment, value addition and sector deepening and development.

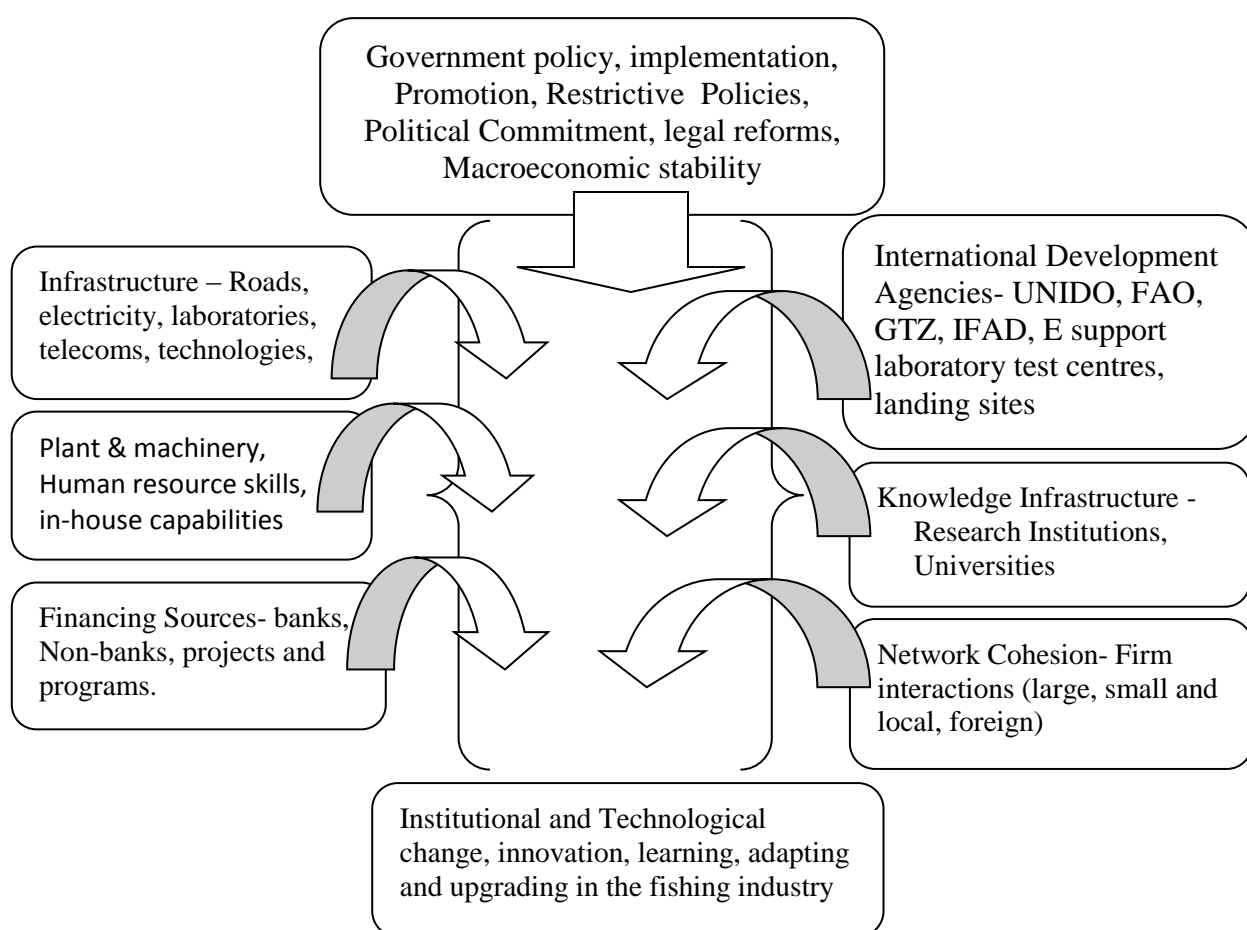
- iii. The lack of dedicated fishing port for industrial fisheries and poor facilities at landing sites undermine efforts to meet EU SPS standards.
- iv. Poor surveillance and an ineffective policing of The Gambia's EEZ encouraged illegal and irresponsible fishing.

### **4.3 Methodology**

The study adopted mainly an analytical approach by assessing fish industries policies, macroeconomic environment, institutional and technological developments, roles of international development partners such as UNIDO, government agencies and overseas importers in the fisheries industries of the two countries. The study also analysed quantitative data sourced from Uganda Bureau of Statistic, The Gambia Bureaus of Statistic, Bank of Uganda, Central Bank of The Gambia, Uganda Department of Fisheries Resources, Gambia Department of Fisheries, World Bank website and FAO fish statistics. These address the institutional and technological capability developments on fish SME performance vis-à-vis production, exports and value addition.

Figure 4.4 shows the pre-requisites for technological learning, adapting and upgrading in the fishing industry. The vital role of government policy and the political will to ensure stable macroeconomic environment, provide infrastructure, tax incentives, legal reforms and collaborate with development partners are vital for institutional development and technological learning and upgrading. The essential roles of private sector network cohesion, knowledge infrastructure (universities and research institutions) and financial markets are key in pushing the technological learning towards the frontier phase.

Learning mechanisms enable enterprises to increase their technological capability endowments through in-house training programs, learning by doing, strong networking among firms and linkages with local suppliers, clients, knowledge institutions, banks, local and foreign consultants and industry networks (Biggs et al. 1988). These linkages enhance the technological capabilities of domestic firms ranging from information sharing to strategic partnering and joint venture. Participation and collaboration mean that firms can leverage technical expertise and share information from a larger pool (Wesphall et al. 1985).



**Figure 4.4: Analytical Framework of Institutional and Technological Change**

Source: Adapted from Katz (2006) and Rasiah (2007)

#### **4.4. Macro, Meso and Micro Coordination**

Government efforts to improve the macroeconomic environment helped provide the stability required for the introduction of policies to strengthen the meso-organisations' support to technological upgrading of the micro firms in Uganda and The Gambia. As a consequence, the GDP growth rate of Uganda rose from 0.2% in 1980 and a low of -0.3% in 1985 to 3.2%, 4.8% and 8.1% in 1992, 2000 and 2007 respectively, while the GDP growth rate of The Gambia increased from 1.6% and 2.7% in 1980 and 1985 respectively to 4.2%, 5.2% and 6% in 1992, 2000 and 2007 respectively (see Figures 2.5 and 2.6).

Uganda started recording positive growth since 1987 following its past political and economic chaos that characterised the former President Idi Amin era in the 1970s and rebel wars of Yoweri Museveni's National Resistance Movement (NRM) of the 1980s (Bigsten 1999, 2000; Svensson, 1999; Kasekende & Ssemogerere, 1994; Keizire, 2004). Except for couple of years following the toppling of Sir Dawda Jawara government in 1994 by group of young soldiers, The Gambia has enjoyed a stable political and economic environment.

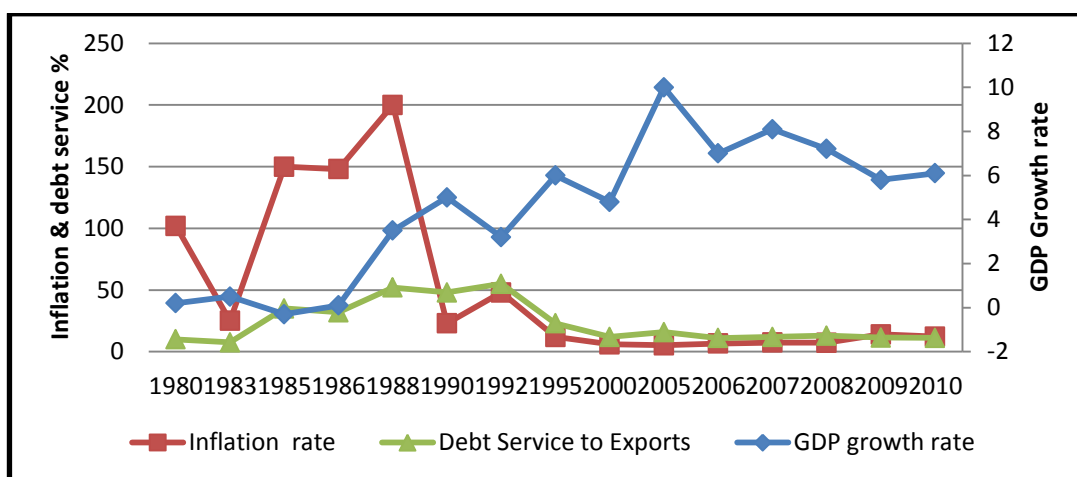
As shown in Figure 4.5, improvements in Uganda economy saw inflation dropping from 196% in 1988 to 48% in 1992 and 6% in 2000 before rising again to 12.2% in 2010 (BOU, 2011). GDP growth rate recorded an average annual growth of 4.5%, over the period 1998-2010 (Kiggundu, 2006: 302; Kasekende 2005; BOU, 2010). This appreciable growth was achieved partly as a consequence of a depreciation of the Ugandan Shilling against the US Dollar. The depreciation of the Ugandan Shilling came in the wake of an economic downturn that started in the late 1980s with the currency falling from 558 Ugandan shillings (Ushs) to a US dollar in 1988 to 1,333 Ushs to a US dollar in 1993 (Morrissey, 1998) which seriously affected many exporting industries including fisheries as it made imports costly. Declining export revenues failed to cover rising imports which led to rising debt with



deficits continued to be financed by increasing international borrowing. As a result, the total debt service dramatically increased from 39% in 1987 to 55% in 1992 before the stabilising macroeconomic environment helped lower it to 15.8% in 2005 and 12.2% in 2010 in Uganda (UBOS, 2011) ( see Figure 4.5).

In the case of The Gambia, external debt ratio fell from 18.0% in 2001 to 8.4 in 2003 before rising again to 11.9% in 2005. Inflation fell from 14% in 1990 to 5.2% in 1995 and 4.9% in 2005 before surging up marginally to 5 percent in 2010 (CBG, 2011) explained by tight fiscal and monetary policies instituted by government. The Gambia recorded an average annual GDP growth rate of 4.1% over the period 1980-2010, which is impressive for a least developed country (Gambia Bureau of Statistics, 2010; see Figure 4.6).

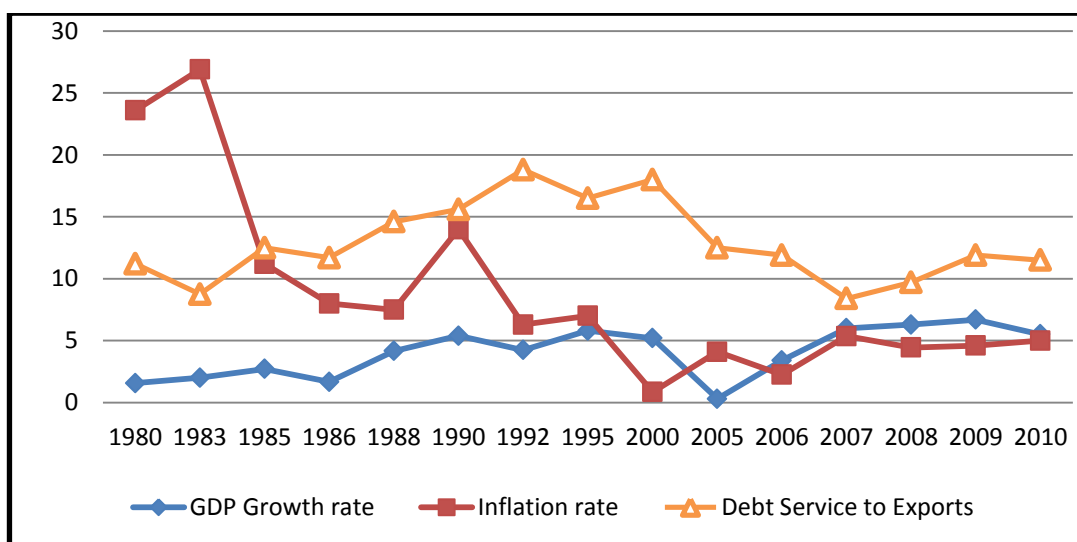
Prior to the Economic Recovery Programs (ERPs) of the late 1980s, price controls that drove prices below market rates acted as a disincentive to producers, which undermined the agricultural export base of both countries as the small and undiversified economies failed to be insulated by critical meso-organisations, such as, the Central Banks and the marketing boards thereby leaving them vulnerable to external shocks (BOU, 2010, Kiggundu, 2006: 302). The ERP transformed the situation by closing down or privatising inefficient marketing boards. Foreign exchange base gradually improved to several months of imports. The meso-organisations were further strengthened when the ERP gave way to The Programme for Sustained Development (PSD) in The Gambia in 1990 aimed at sustaining improvements in the economy.



**Figure 4.5: Selected Economic Indicators, Uganda, 1980-2010**

Source: Bank of Uganda, Uganda Bureau of Statistics, (2011)

The macroeconomic environment in both countries improved from the late 1980s suggesting that macro-institutions did not adversely affect the fishing industry. However, differences in the initial conditions with industrial fishing dominating in Uganda and artisanal fishing dominant in The Gambia, and in the nature of institutional and technological developments produced contrasting outcomes in the two countries. We turn to these issues in the subsequent sections.



**Figure 4.6: Selected Economic Indicators, The Gambia, 1980-2010**

Source: Central Bank of The Gambia, (2011)

#### **4.5. Institutional Developments**

To support the traditional and non-traditional agricultural exports, several initiatives were taken by both governments to boost the export market through diversification into high valued products. The Ugandan Export Policy Development Unit and The Gambia's Investment Promotion and Free Zones Agency (GIPFZA) were established with the purpose of offering private sector, fishermen and fishing firms in particular, the fillip to expand fish exports.

In 1992, the Government of Uganda set up credit schemes at the Development Finance Department of the Bank of Uganda (The Central Bank of Uganda) to support SME financing and promotes export expansion and economic growth (Kiggundu, 2006:304; Morrissey et al. 1998). This coupled with incentives given by government of Uganda to commercial banks to finance SMEs including fisheries significantly increased lending in the industry. The introduction of supply and value chain financing in the agricultural sector also enable small farmers and artisanal fisheries access to formal finance thus increase their production, incomes, assets and become more visible in addressing information opacity. The government in The Gambia established The Gambia Commercial and Development Bank (GCDB), The Gambia Co-operative Union (GCU), Agricultural Development Bank (ADB) and several donor projects to address financing needs of SMEs in general and fish SMEs in particular. Some of these schemes performed relatively well in the short-run while many others failed to achieve their objectives due to long duration of loan processing, high interest rates, political hijacking, poor appraisal and monitoring (Morrissey et al. 1998; Jaabi, 2004:1-3; Nathan Associates, 1995:6). The lack of similar incentives and the collapse of GCU, GCDB and ADB limited efforts to enhance fish SMEs increase access to formal finance in The Gambia.

Economic policy changes in the 1990s saw the establishment of Uganda Investment Authority (UIA) and The Gambia Investment Export Agency (GIEA) to promote local and foreign investment, provide tax relief and other incentives to investors and exporters. It was in 2000 that Uganda introduced a new regime on tax breaks and incentive allowances for scientific research, plant and machinery, training and start-up costs (Kiggundu 2006:304). However, despite these incentives were recognised to promote investment in the sector, they were not adequate in introducing an overall dramatic change in technological upgrading of the fisheries sector. The lack of knowledge and red-tape limited many investors from accessing these incentives. Similar initiatives were introduced by GIEA but the huge investments and human resource skills required are beyond artisanal fishermen to upgrade their technological capabilities. More policy initiatives are needed to attract increasing industrial fisheries into the industry with capabilities of pushing the sector forward.

#### **4.5.1 Role of International Organisations**

Through the support of the Food and Agricultural Organisation (FAO) in the 1950s to assess the fish stocks in Lake Victoria in the early 60s, Nile Perch was introduced in the lake to feed on Haplochromines, forming close to 80% of lake resources at the time (Geheb, 1997). However, it was in the early 1990s that new donor-led strategies supported both governments in planning and monitoring, management measures and enforcement, resource evaluation and statistics compilation, export promotion and quality control, research and extension, education and training and financial credit (Kiggundu, 2006: Mendy, 2009).<sup>53</sup>

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<sup>53</sup> Despite efforts of projects in The Gambia – AfDB USD14 million support in 2003 to develop artisanal fisheries, BADEA helped with USD 0.35 million for fish quality control laboratory and USAID funded USD2.5 million Gambia-Senegal Sustainable Fisheries Project 2009 -2014, these have not translated into much technological improvements in the sector.

Despite several projects established in both countries, efforts to reform the fisheries department into several units (statistics and planning, law enforcement, R&D, and training) to enhance effectiveness, policy coordination and streamlining support systems did not translate into improved technological change in the sector. As a result, the promotion, technological learning, diffusion and upgrading fell considerably short of international food quality and safety standards in Uganda and The Gambia. Access to data and information on fish resources and yields became problematic. Management measures on mesh sizes, laws and regulation were often inconsistent and inadequately enforced (see Frielink, 1990; Jansen, 2000; Mendy, 2009). The ability of artisanal fisheries in meeting international sanitary requirements became difficult in The Gambia, thus they relied more on dried, smoked and salted fish exports to neighbouring landlocked countries, Eastern and Southern Africa and Asia. This has increased the volume of fish exports to other African countries to 73.7% relative to 31.2% to EU in 2005 associating with difficulties in meeting SPS requirements (Mendy, 2009:17).

Fish training programs are limited in The Gambia as the only university in the country is young not equipped with relevant capacity to offer courses in fish technology. Hence, much of the training is carried out at local workshops and training institutions in the region, particularly Ghana and Nigeria. Through the support of donor partners, a number of Department of Fisheries' officials were trained overseas at postgraduate levels in quality and food safety management, food microbiology and inspection practices. Also, under the fishing agreements with EEC, training of fisheries Department officials and funding for scientific research programs were provided (Mendy 2009:16). AfDB, Arab Bank for Economic Development in Africa (BADEA), UK Department of International Development (DFID), FAO, Taiwanese government and USAID assisted in upgrading landing sites,

fisheries ports, construction of ice plants and equipping the quality control laboratory. However, the dominance of artisanal fisheries lacking relevant capacity failed to translate these supports to upgrade technologies in the sector. The inability of artisanal fisheries to train employees and attract skill human resources limited their fish production and greater access to formal finance.

In Uganda, university degrees with a focus on fish and fish culture is primarily undertaken at Makerere University, which offers only general programs in animal science, instead of specific skills training in fisheries related technology programs. Similar training programs in aquaculture were limited and collaborations with specialists in food and veterinary science was seriously lacking (Geheb, 2000; Kiggundu, 2005). According to Frielink (1990), despite the efforts of the Fisheries Training Institute (FTI), the much needed skills and technological learning and upgrading remains extremely low in the sector.

Until 1997, sanitary qualities in both countries were weak when compared with international food safety and quality standards. According to Keizire (2004), Mendy (2009) and Kiggundu (2005), most fish landing sites in the two countries, lacked basic infrastructure, such as, water, ice, electricity and lavatories. Despite being aware of international sanitary standards, the Uganda National Board of Standards (UNBS)<sup>54</sup> found it difficult to rectify the situation into healthy fish handling and processing practices. The inability of Department of Fisheries Resources (DFRs) to improve and comply with higher standards also became apparent. The network body (UFPEA) was not effective to provide

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<sup>54</sup> The competent authority in Uganda had limited capacity in terms of infrastructure and human skills to fulfill its mandate of inspection, monitoring and enforcing sanitary and responsible fishing compliance issues.

the right technical back-up support to the industry. There is no such network body in The Gambia to coordinate sector concerns and dialogue with government on policy changes to support industry growth and development is made difficult.

In Uganda, the response to EU ban for failing to address SPS requirements triggered joint efforts in Uganda's fisheries industry from across stakeholders to address the fish export crisis. The European Commission's sanitary phytosanitary (SPS) technological standard through Council Directive of 91/493/EEC in July 1991 was instrumental in providing the trigger to transform the safety standards of fish processing in Uganda. In 1997, the European Commission (EC) through Council Directive of 97/296/EC required all developing countries to seek authorisation from the EC before exporting fish products to the EU (McCormick, 1999; Kiggundu, 2005). There were several conditions that had to be met to comply with EU fisheries Council Directive (Nathan and Associates, 2000). Many argued that the strict sanitary and other regulations of EU and the United States are a disguised protection against WTO trade rules. These restrict most developing countries' participation in global trade as they lack the expertise in terms of human resource skills, state-of-the-art equipments and unrestricted external financial access. The following steps are essential though not limited to the list:

- i. Local inspection authority is appointed by the government as the competent authority must be approved by the EU to oversee the inspection process.
- ii. The competent authority laboratories are tested and must be approved by EU inspectors to conduct test analysis.
- iii. Infrastructure and sanitary conditions at landing sites require improvement to international standards.

- iv. Public agencies must ensure high standards of hygiene and fish handling throughout the linkages in the supply and value chains.

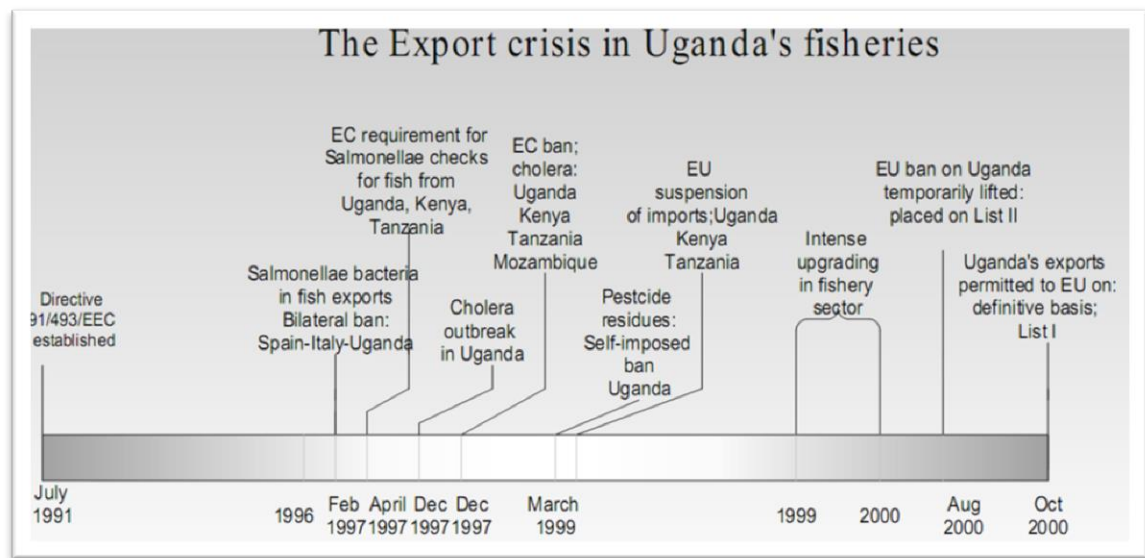
Fish processing and exporting firms are certified by the competent authority to export to EU after fulfilling requirements in operations, plant layout and HACCP inspections. The list of compulsory sanitary requirements is long and complicated requiring huge investments in plant and machinery, infrastructure and human skills. The compulsory requirements applied to fish imports by the EU and other major importers, such as, the United States, Japan, Australia and other multinational supermarket chains differ considerably (Henson and Mitullah, 2004) which put further constraints on developing countries to meet wide ranging health and regulatory standards. Fishing unlike other SME activities, the freshness, quality and sanitary condition of fish must be maintained throughout the supply chain and this requires huge investments in technological upgrading, among others.

However, despite the introduction of stringent certification standards, technical change in the fish industry remained slow until 1997. It was in February 1997, Spanish authorities detected salmonellae bacteria in the fish exports of Uganda which caused the death of two people from eating contaminated fish (McCormick, 1999: 1536). Spain and Italy imposed a joint ban on the fish imports from Uganda. In April 1997, the European Union required frozen and fresh Nile perch imports from the three countries sharing Lake Victoria to be strictly checked for salmonellae bacteria before entry to the EU market.

Figure 4.7 shows the process of fish export crisis in Uganda and when the country regained the eligibility to exports fish to EU. As measures were taken to address EU fish sanitary requirements, a cholera outbreak hit Uganda in the late 1997 which became a huge setback



as the EU again banned imports in December, 1997 from Uganda, Kenya and Tanzania (Nathan and Associates, 2000).



**Figure 4.7: Fish Export Crisis, Uganda, 1997- 2000**

Source: Kiggundu (2005: 131)

Fish catching practices using poisonous chemicals attracted another ban in November 1998 (McCormick, 1999: 1536).<sup>55</sup> The Ugandan government responded in March 1999 to stop all fish exports until food safety measures in the industry could be guaranteed, which was followed by a ban on fish imports from Uganda, Kenya and Tanzania by EU.

Institutional change quickened to absorb, spread and ensure that compliance with EU-imposed sanitary conditions is achieved. Although the government was a slow starter, it played an important role along with the other stakeholders such as the private sector, commercial banks, universities, research institutes and international development partners to meet the EU sanitary and technological standards. Graduating from the crisis was

<sup>55</sup> Small fishermen had to resort to poisoning the lake to catch fish. They considered themselves being thrown out of the market by industrial fisheries and marginalised by the authorities as policy supports were skewed to promoting industrial exports.

followed by huge exports from 2002 till 2006 (see Figure 4.8) when over-exploitation of the Nile perch threatened the exhaustion of Nile fish stocks. This has shifted demand towards Dagaa, Tilapia and other fish species though these do not attract high values in EU markets as Nile perch.

Table 4.1 shows the process of technological change in Ugandan fisheries prior and post fish export crisis. The ability to export to high value markets in large quantities was only possible after meeting EU sanitary conditions. Firm sanitary capabilities, technical support, meso-organisations and basic infrastructure were inadequate. Local firm capabilities were weak, human resource skills, access to financial credit, plants and machinery acquisition were low prior to the crisis. This made it extremely difficult for local firms to meet global market sanitary conditions prior to the crisis.

With collaborations in the fisheries sector of Uganda, improvements were made to sanitary conditions, legal reforms, monitoring, extensive external financial access either directly or indirectly through supply and value chain financing, supportive sector policies and knowledge infrastructure to enhance technological upgrading.

The Gambia's fisheries sector could be linked to Uganda's prior crisis situation as shown in Table 4.1. As there is no crisis to respond to, knowledge infrastructure, sector policies, access to formal external finance and developments of domestic firms remain weak to support industry growth and development.

**Table 4.1: Dynamics of Technological Change in Ugandan Fisheries**

<b>Key Issues</b>	<b>Prior fish crisis 1997-2000</b>	<b>Post fish crisis After 2000</b>
Exports to high value markets require improved hygiene standards and effective enforcement	No effort/incentives to introduce technological change	Export to high value markets only accessible after full compliance with EU SPS conditions
Enhancement of sanitary conditions and associated knowledge infrastructure	Weak SPS capacities and poor technical support from knowledge infrastructure institutions	Through public sector support, SPS capacities, legal reforms, monitoring and surveillance measures and technical support from knowledge infrastructure were enhanced to improve technological change
Sector policies and technological change	Uncoordinated and scattered efforts, weak political will and poor leadership could not make any meaningful change in the sector	Improved sector policies, enhanced political will, strong leadership increased financial access and coordinated efforts pave the way for sector growth
Local firm capabilities respond to EU sanitary prescription	Low human resource skills, financing constraints, weak plant layout, machinery and equipments made it difficult for local firms to control domestic processing and compete globally	More regional foreign firms entered the industry with relatively larger size, attract high skill personnel, access finance and able to partner foreign firms to upgrade technology in the sector

Source: Adopted from Kiggundu (2006)

#### **4.5.2 Role of Government**

The Ugandan government's regulations restricted fisheries related activities to domestic businesses until liberalisation in 2002 which provided the impetus for the development of the local industry (DFR, 2002). While industrial fishing firms dominate the cash economy, artisanal fisheries operators use traditional processing involving sun-drying, smoking, and salting fresh fish which is based on low quality and juvenile fish not accepted by the more lucrative European markets. The public sector agencies and knowledge infrastructure institutions in both countries connect little with artisanal fishermen to assist them meet

overseas buyers' quality demands. It is through artisanal fisheries linkages with industrial firms that strengthen their capacities via supply chain support.

Uganda's industrial fish processing can be traced to 1948 with state-owned Fish Marketing Corporation supplying frozen and salted fish to Europeans in East Africa (Kiggundu, 2006). The inspection of fish products is conducted by health officials to ensure conformity with international standards. However, this has not been strictly applied and remains ineffective. The State fish processing enterprise collapsed in the mid-1970s due to deteriorating economic and political conditions, which was crippled from international blockade during the malaise of former President Idi Amin Dada's reign.

The Ugandan government played two key roles in facilitating the institutional and technological change in the fishery sector (Keizire, 2004; Kiggundu, 2006), namely:

- i. Facilitating compliance with overseas sanitary requirements (SPS and HACCP).
- ii. Investing in building food safety capabilities and the associated knowledge infrastructure.

The Ugandan authorities strengthened the legal framework that empowers the Department of Fisheries Resources (DFR) to monitor and enforce food safety measures in all fish-processing plants. This was earlier the mandate of UNBS but implementation remained ineffective. DFR, thereafter, assumed full responsibility to respond to the fish export crisis by setting up committees and developed standards based on EU SPS compliance requirements. However, it became clear that DFR's new responsibilities were over-ambitious and beyond its human and financial resources.

The government of Uganda in collaboration with the United Nations Industrial Development Organization (UNIDO) and a host of other development partners<sup>56</sup>, supported the Uganda Integrated Program (UIP) which provided technical assistance to government and the fisheries sector in particular to the tune of USD6.26 million (Kiggundu 2005.133). The UIP hired consulting firms overseas to strengthen sanitary audit systems at DFR, train inspectors and quality assurance officials in fish processing and exporting firms, steps that were key to the re-entry of the fish industry into the EU market. In 2000, with the support from international development agencies, a new formal course in fisheries and aquaculture was introduced at Makerere and Mbale Universities to train specialised fisheries officials and strengthen collaboration between the zoology department and the faculty of veterinary science.

Training institution also emerges to provide ISO quality-certification course. The UIP supported DFR with office equipments and assisted to publish a manual on fish inspection that was further developed by DFR local fish scientists. This enabled effective inspection and regular surveillance to ensure compliance. The collaborative inspection missions with similar specialist organisations enhanced improvements in fish inspection services thus facilitated entry into the U.S market where approved HACCP systems are demanded.

Prior to the upgrading of the in-country laboratories, the export-oriented fish was initially been tested in Europe. It was the financial support from UNIDO that helped upgrade a locally incorporated Belgian private laboratory to internationally accepted quality standard

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<sup>56</sup> The first phase of the project was supported through conglomeration of international development assistance to the tune of USD6.26 million from Italy USD1.55 million, Norway USD1.38 million, Japan USD0.88 million, Austria USD0.71 million, Denmark USD0.67 million and UNIDO USD1.06 million (Kiggundu, 2005).

approved by EU to conduct test analysis. Uganda's fish laboratories were eventually upgraded to EU standards to facilitate re-entry to EU markets. UNIDO is also supporting The Gambia to upgrade local laboratory to meet demanding market requirements. The Fisheries Department and the Department of Livestock Services' laboratories are currently being used to test fish quality and safety before the UNIDO supported laboratory upgrading in 2012.

The Lake Victoria Environmental Management Project (LVEMP) provided financial and logistics support that was crucial for the effective implementation of inspection and law enforcement services. The joint inspection conducted by Uganda's DFR, UNBS and the Food Science Research has helped promote cross-learning and diffusion of knowledge within the sector. Specialised courses in fisheries were introduced at Makerere and Mbale Universities to train fisheries officers in food science and safety.

The University of The Gambia (UTG) does not have programs for fish technology training. The Gambia government in collaboration with donor partners builds capacities in food safety and management at various levels. However, the low capacities of artisanal fishermen and often high illiteracy levels make their formal training difficult (see Skare, 2011). In line with Kim et al. (2011), artisanal fisheries are bound to be limited to engage in R&D intensity, technology commercialisation and external networking capabilities due to their lack of human skills and resources devoted to R&D and their technological knowledge is generally less than comprehensive compared to large corporations (also see Lee, 2004; Kaufmann, 2002).

In Uganda, the need to resume and sustain exports to the EU drove the private sector to participate in fish safety and quality training targeting officers of fish processors and exporters. Local firms also emerged to provide pest control and fumigation services. The Bank of Uganda with its credit scheme, financial institutions and lease companies provided important investment and debt capital support for importation of plant and machinery, technology and total upgrading of their processing chains. The Center for the Development of Industry (CDI), a Belgium-based support agency assisted UFPEA on hygiene control, chemical and microbiological testing, waste management and product cycle flow (Kiggundu, 2006). The construction of new industrial landing jetty in Banjul and upgrading of four more funded by the African Development Bank (AfDB) are expected to support industrial and small-scale fishing operations to produce quality fish products for global markets.

#### **4.5.3 Sector Policy Support**

The key measures taken to boost Uganda's fish industry were the moves by government to ban the export of unprocessed fish captured from Ugandan waters and the prompt compliance with EU Council Directive of 97/493/EEC. The positive macroeconomic outlook and the deliberate policy of Ugandan government to add value to raw Nile perch exports attracted investors from neighbouring Kenya and accelerated private sector participation to exploit new business and export opportunities that arose from increasing Nile perch landings (Nsimbe-Bulega et al. 1999).

It was vital that the Ugandan government demonstrated a clear vision, leadership, and political will to institute technological change and upgrading in the industry<sup>57</sup> (also see Naik, 2006 on Indian maize seed technology, Mathew, 2006 on Taiwan and Rasiah, 2006 on Malaysian oil palm). There was an urgent response to institute legal reforms, established effective statutory and enforcement powers with new competent authority and national standards developed to match EU standards.

To boost fish production and exports, The Gambia did not follow similar policy measures taken by Uganda in banning unprocessed fish exports. Most foreign firms licensed in The Gambia are also licensed in neighbouring countries, while some come from EU and other Asian countries, transporting their catches from Gambia's EEZ for processing overseas. This is due to lack of appropriate port facilities for industrial fisheries and the weak policy support to attract FDI in the industry. The catches are processed, labeled, branded and exported in the name of these countries denying The Gambia of vital foreign exchange earnings, jobs and further development of the sector.

Through the fish agreements of 1987 – 96 with EU, fish resources were heavily exploited for a meagre compensation fund to many West African Coastal States including The Gambia<sup>58</sup> (Kaczynski & Fluharty, 2002: 86). Also, the bilateral fisheries agreement with Senegal provided major benefits to the latter as the agreement allowed fishing vessels

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<sup>57</sup> Similar policy initiatives by Indian government triggered technological upgrading in maize production to support its poultry industry by lifting a ban on maize seed technology that unleashed healthy competitions between public and private laboratories to adapt imported technology to local conditions (see Naik 2006) and Rasiah (2006) on oil palm in Malaysia. Past public investments in science and technology enabled local scientists to participate in technological adaptation, the potential missing in most LDCs of SSA.

<sup>58</sup> Between 7.5% to 10.5% of total catch value equaled the compensated fund to West African Coastal States.



licensed in Senegal to fish in The Gambian waters and land their catches in Senegal. Senegalese nationals are also heavily present in The Gambia's artisanal fisheries with high risk of potential smuggling of their catches into Senegal. The value of legal catch transported to Senegal is estimated at USD5-10 million annually over the last ten years with an added 25% of illegal fishing, which in total exceeds the amount of fish exported by the Gambia annually (Department of Fisheries, 2009). Only three industrial firms were landing catches at in-country landing sites for local processing which is where much of the potential lies for local value added. Processors are operating far below capacity as they depend almost totally on artisanal catches. It is estimated about 80% of the catch of the licensed industrial fleet and 100% of illicit catches are landed in overseas ports (Department of Fisheries, 2009).

#### **4.5.4 Role of European Union Nile Perch Importers**

It is also important to note that overseas importers of Nile perch played a vital role in assisting Uganda to solve the fish exports crisis (Jansen, 1997; 1999; Keizire, 2004; Abila et al. 2000). The EU Nile perch importers played an advocacy role through an association formed during the crisis to update EU authorities in Brussels on progress made in Uganda's SPS standard compliance. Many went further to provide pre-shipment financial support as well as loan schemes to upgrade operations, plant and machinery and technologies for local firms to meet export requirements. Some eventually became equity shareholders in Ugandan firms. Many EU importers also assisted by investing in fishing equipments, such as, inland fish cooler trucks to transport fish from landing sites to process centres and Mombasa sea port for exports and high quality mesh gears, the cost of which are beyond many local fishermen. With low domestic firm capabilities, overseas buyers were also vital

source for new fish product development, designs and marketing in the supply chain<sup>59</sup>. The semi-processed fish exported are reprocessed by these overseas partner firms, branded and labeled according to customer specifications.

#### **4.6. Development of Technological Capabilities**

Trade is a crucial driver to growth and development and domestic technological capabilities are key components of developing countries' development strategy. Increasing its participation in international trade and improving penetration of global markets can help uplift Africa's pace of growth (Wilson & Abiola, 2003). In this vein, addressing the effect of product standards both as barriers to trade and opportunities to expand market access is likely to have high rate of return. However, many African economies face critical challenges in improving domestic capabilities to meet production and quality standards that require strict compliance in foreign markets. This process includes enhancing production processes, improving quality assurance and management systems by firms and better monitoring, evaluation, product testing and packaging methods to respond to changing technical requirements of trading partners (see Wilson et al. 2003; Nyangito et al. 2003; Rudaheranwa et al. 2003). Institutional reforms, investment in human skills and improvements in laboratory infrastructure and facilities are critical in meeting quality standards and boosting fish exports.

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<sup>59</sup> In Uganda, the initial weak private and public technological capabilities constrained the development of technological learning and upgrading. It was the initiatives taken by foreign companies that successfully stimulated and boosted the export industry but the lack of high technological capabilities prevented them from reaching frontier phase of technological upgrading and move into higher value fish products.

The weak scientific and technological infrastructure and poor public and private scientific capabilities associate with Sub-Saharan Africa (SSA) countries remains an obstacle in technological upgrading and research in the region. The domestic pool of scientific skills to sustain technological adaptation lacking in Uganda and Gambia has constrained the fish industry from technological deepening and competing in global markets for fish products (also see Chandra et al, 2006:35).

Uganda and The Gambia took different paths in acquiring technological capabilities with the former advancing considerably since the late 1990s and the latter remaining entrenched in low technology artisanal fishing. The technical and managerial capabilities in the fish industry in Uganda are dominated by regional multinational corporations (RMNCs). The firm level capabilities are higher among regional foreign firms with capacity to partner with international foreign firms than local firms. Importing capital goods such as plant and machinery and equipments may allow domestic firms acquire technology only if they have technological capabilities to use such equipments (see Dahlan et al. 1985; Chandra et al. 2006). Fish handling and processing are labour-intensive, involving transporting from landing sites to fish processing factories where they are weighed, washed, sorted and graded for processing (Nsimbe-Bulega & Akankwasa, 2002). Fish is processed based on importers specifications, skinned to separate flesh from skeleton or skin on.

Most fish processing firms are equipped with basic infrastructure such as ice-making facilities, equipments and fish refrigerated trucks or hire these equipments from the sector. The fresh fish and chilled products are transported to cold and handling stores at Entebbe Airport in Uganda for shipment to mainly EU markets while frozen fish is transported by refrigerated trucks to Kenyan seaport of Mombasa for shipment

Prior to the 1980s, technological capabilities in the fisheries industry were either limited or non-existent in the two countries<sup>60</sup>. Local firms in both countries are not large enough to attract high skill personnel, access adequate formal financing, make use of tested technologies and exploit the opportunities of network cohesion. Due to these constraints, local firms have difficulties to undertake huge investments in plants and machinery, equipments and required technologies. They lacked access to information and knowledge infrastructure locally and overseas. As a result, many do rely on pre-shipment financing (value chain financing) from their overseas partners and linking locally with larger firms as they continue to face formal financing constraints locally.

Foreign firms are relatively larger in size than local firms, thus are able to attract skilled manpower, bank financing, technological investment and heavy plant and machinery to learn, adapt and upgrade technology (Rocca et al. 2011; Michaelas et al. 1999; Berger & Udell, 1998, 2006 and Becks et al. 2004, 2006). International firms' linkages with regional foreign firms quickened technological learning and adaptation for Uganda's industrial fish exports. However, given the limited R&D, low product development and inability to control global marketing chains, foreign firms in Uganda have not been able to dominate the fishing supply chains.

However, the initiatives taken by RMNCs successfully enhanced the revival of fish exports in Uganda but lapses in local firm technological capabilities constrained the transformation into high value frontier products. It is noteworthy to mention that the public and private sector capabilities in Uganda were at best able to ensure sector's compliance with EU's SPS

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<sup>60</sup> Technological learning was critical as machinery and equipment can be bought requiring knowledge acquisition to utilise them efficiently. To develop the knowledge infrastructure, key role of public sector agencies is crucial. The Newly Industrialised Countries (NICs) of East Asia illustrate this point. They achieved high levels of economic growth owing to technological developments (Lall, 1992).

and U.S's HACCP standards and nothing much thereafter (Kiggundu, 2006: 317; Chandra et al. 2006: 35). The diffusion of technological transfer from FDI in the developing countries depends largely on the effectiveness of local capabilities through expansion and improvements of human and physical capital.

The Gambia lacked such opportunities as policy framework failed to attract the increasing number of industrial firms to operate in the sector. Many of the industrial firms are either licensed in neighbouring Senegal or overseas in EU or Asia having rights to fish in the country's EEZ. The catches by these vessels form a considerable leakage from the economy, denying the country of vital resources needed to develop the sector, create more jobs, incomes for actors, export revenues and the emergence of firms to deal in downstream products for further sector deepening.

Table 4.2 shows relative developments of fisheries technology in Uganda and The Gambia with very low FDI attraction, domestic firm capabilities, local R&D, harnessing diaspora skills and technology parks in the latter than the former. The Table 4.2 shows that Uganda has better developed fisheries sector compared to The Gambia with high FDI attraction, acquisition of capital goods, network cohesion and better domestic R&D.

However, both countries require further assistance from overseas in fish product development and higher value fish products. Both countries need to attract skilled nationals in the diaspora and build technological parks to boost local technological development. The low technological capacities in The Gambia has undoubtedly lessened the country's exports of fish products (see Figure 4.9) to sophisticated markets where quality, technologically-aided processing and specifications matter to a greater extent.

**Table 4.2: Importance of Various Technological Mechanisms**

	<b>Fisheries in Uganda</b>	<b>Fisheries in Gambia</b>
Foreign Direct Investment- FDI	High	Low
Import of capital goods/inputs	Medium	Low
Local industry development and participation	Low	Low
Contracts/Consultants	High*	High*
National R&D	Low	None
Harnessing Diaspora skills/technology parks	Low	None

Source: Adapted from Chandra et al (2006:41)

\*Product development assistance from buyers and consultants overseas

#### **4.7 Technological Change and Performance**

The low export volume and value in The Gambia is associated with difficulties in meeting Sanitary Phyto-sanitary (SPS) and Hazard Analysis Control Critical Points (HACCP) requirements. Export values reported erratic levels from USD2.33 million in 1990 declining to USD1.68 million in 1995. It grew to USD3.35 million in 2000 falling to its lowest at USD0.33 million in 2006 due to targeting high valued fish species before rising further to USD5.93 million in year 2010 (GBOS, 2010).

As mention earlier in Section 4.2.2, The Gambia does not have landing facilities for industrial fisheries until 2012, as a result about 80% of licensed industrial firms and 100% of illegal fishing land their catches overseas where they are packaged, branded and labeled as exports of these countries (Department of Fisheries, 2011; Mendy, 2009). Under the bi-lateral fisheries agreement with Senegal, licensed fish firms in Senegal can fish in Gambian waters while landing their catches in Senegal. This amounts to a considerable loss to The

Gambia and until it is corrected, large fish resources with significant value will continue to be lost to the outside world.

Ugandan fish processing enterprises responded to EU sanitary standards by introducing computer supporting devices to track temperature and yield while others used upgraded equipments. The nature of the process stimulated technological learning through product diversification and food safety. It became possible that there is an overall improvement in firms' in-house laboratory capabilities resulting in reorganisation in plant layout, sanitary standards and fish handling, which helped support exports to sophisticated global markets (Kiggundu, 2005, 2006: 317). Technological capabilities have been low in The Gambia as shown in Table 4.2 relative to Uganda. This has undoubtedly lessened its fish exports to sophisticated markets where quality, technologically-aided processing and specifications matter to a greater extent.

In Uganda, exports also benefited from deliberate efforts to diversify markets within EU and exploiting the new markets of United States, Middle-East and South Asia. Some began to process by-products, such as, fish frames, fish skins, fishmeal that were earlier disposed-off (Jansen, 1999; Abila, 2000) which stimulated the birth of firms engaged in downstream products of juice, crumbs, marinated fish, fish pellets, flour, fish meal and tray packs (Kiggundu, 2006:318). Many fish landing sites were upgraded to EU requirements that drove further differentiation and division of labour in the industry to specialise in producing ice, boats, outboard engines, components and fishing nets to artisanal fishermen at major fishing centres. As a result, fish industry became increasingly more complex, vibrant and a key economic activity in Uganda overtaking coffee in 2005 as the largest agricultural export commodity.

Despite technological advancements there is still room for further changes as Nile perch exports enter EU as semi-processed products which are further processed, branded and repackaged for overseas markets according to customer preferences. However, the challenges are daunting not only because of increasing competitiveness of the industry but also due to rapid technological change in global markets which requires sophisticated skills and capabilities (Rasiah, 2007: 207). Even more daunting is the path facing fishermen in The Gambia as technologically weak artisanal fishing dominates the industry. Lacking access to bank financing and infrastructural development, technological learning in The Gambia has been too slow to assist fishermen to transform to industrial fishing. The Gambia would have to get policies right to attract FDI to increase operations in industrial fisheries and link them to artisanal fisheries for sector growth and development.

The government in collaboration with meso-organisations in Uganda provided the needed coordinating systemic learning, leadership, institutional support and facilitated a platform for interaction among key players through soliciting valuable support from UNIDO sponsored UIP.

#### **4.8. Impact on Fish Exports**

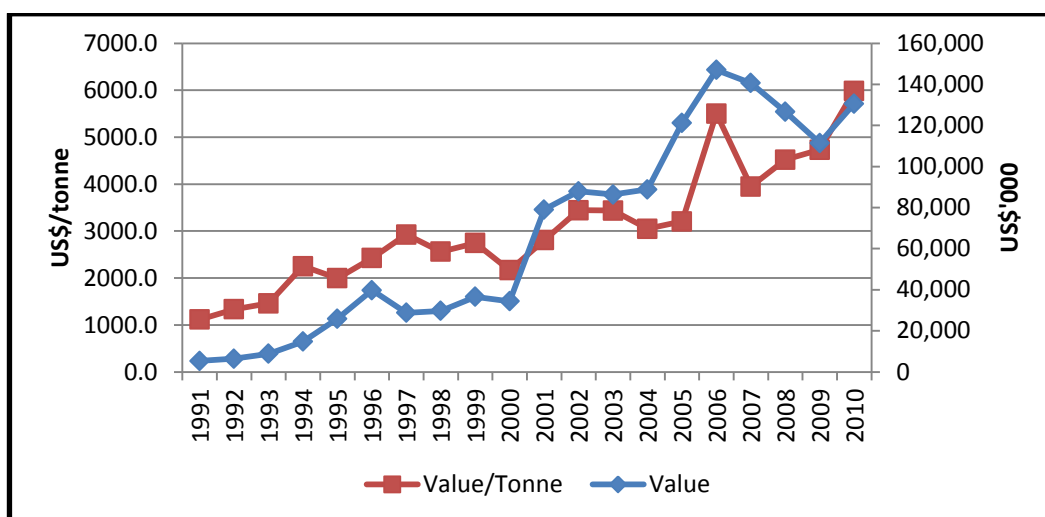
Despite all the weaknesses, Uganda's fish landings rose from 1400 metric tons in 1983 to 100,000 metric tons in 1989 and to 219,356 metric tons in 2000 further to 400,000 tons in 2009 (Namisi, 2000 and FAO, 2010). As a consequence, Uganda's fish exports rose from USD1.9 million in 1990 to USD5.3 million in 1991, USD34.4 million in 2000 to its highest at USD147 million in 2006 before dropping to USD130.6 million in 2010 (Bank of Uganda, 2010). The increases in fish production and exports were largely due to collaborative efforts between public and private agencies that became strong since the outbreak of the fish



export crisis to meet overseas sanitary requirements, abide by the laws governing fishing and the sector policies that attracted international and regional foreign firms into Uganda to exploit opportunities in the industry.

The increase in export values from 1991 to 1996 was due to higher export volumes. Fish exports dropped in 1997 through to 2000 due to export crisis and rose again in 2001. However, the export quantity fell from 28,000 metric tons to 25,000 metric tons from 2001 to 2002 but export amount recorded an increase from \$79.04 million to \$87.9 million respectively. The ratio of value to quantity grew from 2.8 in 2001 to 3.4 in 2002 (see Table 4.3, Column 4 and Figure 4.10). The same scenario continued in 2005 and 2006 when quantity dropped from 37,836 tons to 26,717 tons while export value rose from \$121 million in 2005 to \$147 million in 2006. The value to quantity ratio grew once again from 3.2 in 2005 to 4 in 2006. The same situation again continued through to 2010 when the ratio of value and quantity rose from 3.9 in 2007 to 4.5, 4.7 and 5.9 in 2008, 2009 and 2010 respectively (see Table 4.3, Column 4 and Figure 4.10) while the quantity consistently declined during the period. The drop in quantity is associated with over-exploitation of Nile perch that attracts higher market prices in overseas markets

Figure 4.8 presents the graphic picture of Table 4.3 (Columns 3 and 4) showing fish production and exports. Both levels rose consistently through to 1996 when it dropped from 1997-2000 associated with fish export crisis. After its recovery from the crisis, the levels surged up to its highest in 2006 before declining through to 2010 due mainly to threats of overfishing and strong competition in global fish markets.



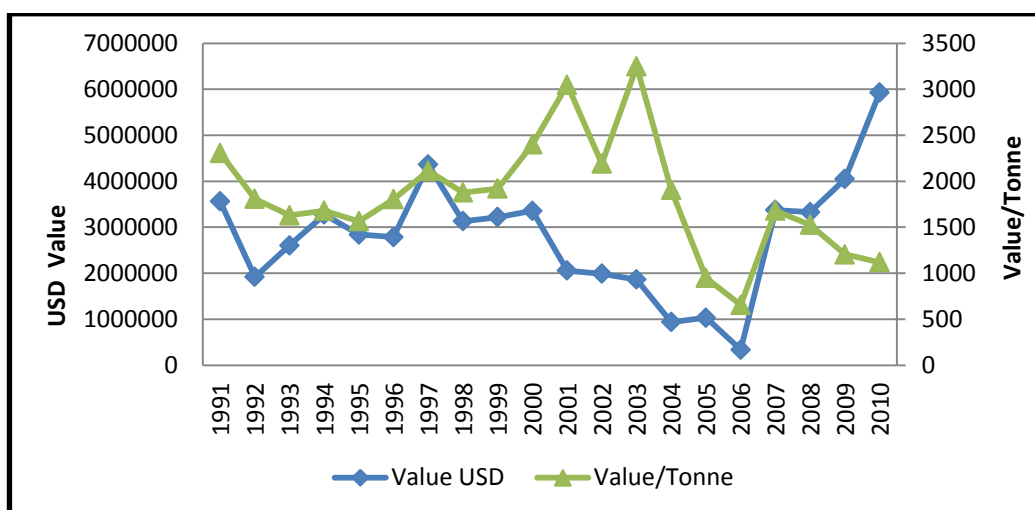
**Figure 4.8: Fish Exports, Uganda, 1991 – 2010**

Source: Uganda Bureau of Statistics, (2011); Bank of Uganda (2011)

**Table 4.3: Uganda's Fish exports 1991 – 2010**

Year	Quantity	Value USD '000	Value/quantity of fish exports	Share of fish to total exports
1991	4751	5309	1.1	12
1992	4831	6451	1.3	20
1993	6037	8807	1.5	13
1994	6563	14769	2.3	11
1995	12971	25,903	2	12
1996	16396	39781	2.4	17
1997	9839	28800	2.9	13
1998	11604	29733	2.6	22
1999	13342	36608	2.7	18
2000	15876	34363	2.2	16
2001	28153	79039	2.8	28
2002	25525	87945	3.4	31
2003	25111	86343	3.4	17
2004	29138	88815	3	17.2
2005	37836	121220	3.2	22.2
2006	26717	147043	4	21.8
2007	35642	140667	3.9	15.01
2008	27992	126589	4.5	10.6
2009	23550	111467	4.7	9.7
2010	21805	130563	5.9	11.6

Sources: Uganda Bureau of Statistics, (2009, 2010), Department of Fisheries Resources, (2009)



**Figure 4.9: Fish Exports, The Gambia, 1991-2010**

Source: The Gambia Bureau of Statistics, (2011), Department of Fisheries, (2011)

**Table 4.4: The Gambia's Fish Exports 1991-2010**

Year	Quantity	Value USD '000	Value/quantity of fish exports	Share of fish to total exports %
1991	1544.4	3564.00	0.66	6.12
1992	1060.9	1919.00	0.85	3.26
1993	1597.9	2605.00	0.96	6.3
1994	1949.6	3275.00	0.99	8.39
1995	1817.1	2843.00	1.08	11.88
1996	1543.3	2786.00	0.93	16.96
1997	2063.4	4360.00	0.76	26.1
1998	1665.5	3129.00	0.82	13.36
1999	1676.5	3219.00	0.76	18.58
2000	1399.0	3358.00	1.96	20.69
2001	675.0	2058.00	1.98	15.15
2002	908.0	1989.00	1.17	6.23
2003	574.0	1865.00	0.73	0.72
2004	492.0	938.00	0.62	0.3
2005	1087.0	1031.77	0.95	1.04
2006	513.0	336.41	0.65	0.33
2007	2008.0	3372.99	1.68	2.75
2008	2182.0	3329.84	1.53	1.77
2009	3359.0	4048.67	1.21	2.38
2010	5290.0	5926.6	1.12	3.94

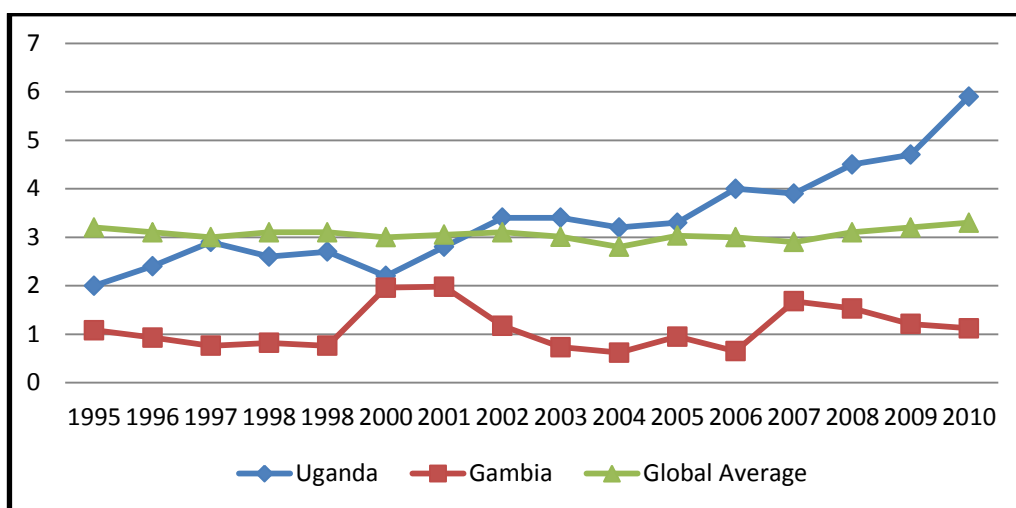
Source: Gambia Bureau of Statistics, (2011), Department of Fisheries, (2012)

Figure 4.9 shows a graphical presentation of Table 4.4 with the value dropping consistently from 1997 through to 2006 before increasing to 2010. This is associated with targeting fish pieces with higher value prices in global markets and difficulties in meeting overseas sanitary and quality standards. The volume has also declined significantly over the years as shown in Table 4.4 and Figure 4.9 due mainly to the dominant artisanal fisheries in the sector with considerable weakness to capture fish in large quantities and export to sophisticated markets.

#### **4.9 Fish Value Addition**

Figure 4.10 shows the value/quantity of chilled fish exports of Uganda and The Gambia over the period 1995 to 2010. The unit value of chilled fillets from Uganda matched the global average in 2001, recording close to the US\$3,000 per ton value in 1997, the year when the fish export crisis struck. Unit prices have since risen sharply over the global average from 2002. The Gambia faced a completely different experience as the ratio of fish export value per ton remained lower than the global average during the period 1995-2010. In fact, unit price fell over the period 2007 to 2010 as shown in Figure 4.10.

The unit value of chilled fillets of Uganda matched with the global average, recording close to USD \$3,000 per ton in 1997 but fell through to 2000 owing to the fish export crisis until 2001 when it overtook the global average (see Figure 4.10). The case of The Gambia was entirely different with the ratio of fish export value to quantity fell behind the global average of USD3,000 per ton throughout the period. The highest ratio was in 2001 with 1.98 compared to global average of 3.0 and Uganda's highest of 5.9 in 2010 (see Tables 4.3 and 4.4).



**Figure 4.10: Value/Quantity of Chilled Fish Exports, 1995 - 2010**

Source: Uganda Bureau of Statistics, (2011) and The Gambia Bureau of Statistics, (2011)

Despite concerns of overfished Nile perch (Jansen, 2000; Keizire, 2004; Kiggundu, 2005, 2006), exports from Uganda has increased sharply since 2001. Rapid technological transformation helped the expansion of exports to competitive markets (Kiggundu, 2006). Despite the ongoing supply constraints, the unit value of exports increased sharply beyond 2000, showing a fast recovery from fish export crisis and greater ability of fish processing firms to export to sophisticated EU and U.S markets. The successes in fish handling and processing enabled fish enterprises to place high valued fish products to complex markets that attach high premiums to food safety, freshness and overall quality. The Gambia remains behind technological upgrading in the fish industry as shown in Figure 4.10. Despite efforts currently being made by Government in collaboration with UNIDO and other government agencies, much remains to be done to lift the industry through to advance phases of systemic pillars for technological upgrading.

It is not surprising that The Gambia lie below global average throughout the time period associated with weaknesses in overall sector technological development. The Gambia remained behind in value addition of fish exports with the levels fell behind the world

average consistently throughout the period explain by its weak fish export base associated with poor developed industrial sector and the dominant artisanal fisheries lacking basic capabilities coupled with poor public sector policies to transform the industry into vibrant export market.

The ability of Ugandan fish industry to export to high-valued competitive markets with an increase in the unit value of fish exports above global averages from 2002 onwards is attributable to value addition. The successes in fish handling and processing enabled firms to export high-valued fish products to lucrative markets of EU and USA where safety, freshness and overall quality are key eligibility conditions for such agricultural commodities' entry into these markets.

Table 4.5 shows the contrasting technological change experience in the two countries with both constrained by local firm and national technological capabilities, developments in R&D, product developments and control over marketing chains. Uganda having gone through the EU compliance requirements was able to export to high value markets of EU, USA and Middle-east. However, fish processing firms are at best meeting EU SPS requirement, hence further production of higher value fish products remained problematic (Chandra et al. 2006:35). The domestic capabilities remains weak due to smaller fish enterprise size unable to hire high skilled personnel, access bank finance and invest in heavy equipments, plants and machinery. They continue to rely on overseas partners for financial, product development and marketing.

The Gambia has not upgraded technologically to export high value fish products to EU markets. The industrial fisheries are not developed to exploit opportunities in the sector.

Public sector policies are not all supportive to trigger radical changes in the fishing industry. With the absence of network association, key concerns in the sector to dialogue with the authorities for solutions are a key obstacle in the industry development.

**Table 4.5: Outcomes of Technological Success**

Key Factors		Fisheries in Uganda	Fisheries in Gambia
Global competitiveness	export	Despite improvements in technological process, lack of R&D, product development, control of market chains remain a challenge.	Weak competitiveness levels, artisanal fisheries with considerable constraints dominate the industry
Level of technological ability to overcome technological barriers vis-à-vis global parity		Just adequate to sustain exports, successive learning of processing technology difficult	Limited processing due to low firm capabilities and SPS and HACCP requirements
Dominating marketing chains and product development globally		Weak control over supply chains and product development	Weaknesses in controlling supply chains and product development
Domestic control of fisheries sector		Weak local firms control, regional MNCs control the industry due to larger size, resources, skills, technologies and linkages with foreign firms	Limited foreign firms, mainly artisanal lacking technological upgrading across various stages from capture to delivery
Local capabilities		Weak local firm capabilities, lacking finance and high skilled personnel to build technological capabilities	Weak local firm capabilities- skills, equipments, linkages, finance, weak meso institutions, weak monitoring and policy support

Source: Developed from Chandra et al (2006:50)

#### 4.10 Summary

This chapter established the theoretical and empirical framework relevant to this study. The presentation in this chapter spanned four aspects. Firstly, it was revealed that institutional

and financial developments matter in availing resources to fish SMEs. The institutional changes in terms of legal reforms in easing business registration, establish commercial courts to adjudicate cases, ease of foreclosure and executing collaterals and other credit protection rights have boosted access to resources including finance in Uganda after the export crisis. There is no similar pressure in The Gambia thus the momentum was lacking to trigger industry transformation. Legal reforms in establishing commercial courts are also in place in The Gambia but lacks effectiveness in adjudicating cases rapidly.

Secondly, the study revealed that developments of domestic firm and national technological capabilities matter in boosting fish production<sup>61</sup>, value addition and exports. The technological upgrading in both countries were inadequate and incoherent until the late 1990s when joint reaction from key stakeholders in Uganda helped to technologically transform the fisheries industry in areas such as operational systems, plant layout, landing site hygiene and overall processing chain. Despite improvements in the industry in Uganda, fish enterprises could not reach frontier phase of technological developments, control supply chains and develop high value fish products. The technological capability building in The Gambia remains low with associated weak linkages and slow public policy support. Investment in sanitary standards and the relevant knowledge infrastructure are required if the industry is to rely on technological learning, research and upgrading as crucial drivers to economic growth and development.

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<sup>61</sup> Fish production increased by 13 percent per annum relative to world trade growth rate of 4 percent per annum (Kiggundu, 2006:326).



Thirdly, the study revealed that despite an enabling macroeconomic condition, property rights protection and conducive investment climate as pre-requisites for the vibrant fisheries sector, these did not attract dramatic transformation in the industry. Government of Uganda's developmental role of the State was key in effecting serious changes in the fish industry. The ban on unprocessed fish exports and the coordinating role it played in implementing a joint response to the fish export crisis in 1997-2000 save the industry from total collapse. The government continues to provide leadership in conducting research, setting performance standards for technological upgrading and coming up with incentive support programs and enforcement measures. This public support coupled with the emergence of leasing companies and diversified formal financial system provided important investment and debt capital support to the increasing diversified industry.

It became apparent that technological change in fishery sector did not take care of itself nor was investment in technology triggered by invisible market forces in the sector. The support systems were not adequate to induce technological upgrading in Uganda. The pressure and sense of urgency to address lapses in the industry and invest massively in adapting and upgrading technology was as a result of EU enforcing Council Directives of 91/493/EEC and 97/296/EC. The standards set put the necessary pressure to stimulate technological upgrading and improved support systems. The joint reaction in the industry was crucial in saving the industry from collapse and transformed the industry to regain high value market exports. Uganda government played a key role by putting pressure on processing and exporting firms to meet the required standards, including but not limited to monitoring and surveillance to ensure responsible fishing and food safety. The response was spontaneous and fire-fighting process involving the government in collaboration with key stakeholders facilitated technological change. Without coordinated efforts, well-targeted incentives, the

continued pressure on actors and public policy support, the momentum for institutional and technological change and upgrading in the industry would have been delayed.

Such a pressure<sup>62</sup> was missing in The Gambia that triggered technological upgrading in Uganda. Not only that the artisanal fishery has been dominating the industry, there has also been a lack of a comparable monumental crisis to quicken learning, adaptation and upgrading in The Gambia. The bilateral fisheries agreement with EU and Senegal requires urgent review to address the unbalanced benefits. The existing agreement is only benefiting The Gambia negatively while at the same time the right industrial port infrastructure must be put in place to attract and develop industrial fishery. The sector policies have to be made right to ensure fish catches in The Gambia's EEZ not only land in the country but processed within the country to add value and benefit from job creation, increase incomes, fish export earnings and other spillovers.

Fourthly, the study revealed that the differences between industrial and artisanal fisheries brought about contrasting outcomes in fish industry performances in the two countries. Industrial fishery is dominant in Uganda with considerable capabilities in accessing formal finance, adapt tested technologies, hire skilled human resources and acquire state-of-the-art equipments to increase fish catches, exports and value addition relative to The Gambia. With artisanal fishery dominance in The Gambia (see Figure 4.3) lacking basic capabilities to access resources, adapt technologies and connect to global markets, has seriously affect industry performance in fish production, exports and value addition.

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<sup>62</sup> As argued by Kiggundu (2005), the pressure to respond to the fish export crisis was missing in Uganda's other sub-sectors like dairy, flour, meat, fruit and fish by-product processing.

The Gambia lacks industrial fishing and with that the linkages associated with it, hence, the first step in The Gambia should be the active promotion of industrial fishing through a strong regulatory framework and with that the meso-organisations to undertake training, export promotion, development of landing sites, maintenance of fishing boats and fish gears. Efforts must also be taken by both governments to promote productive linkages across key stakeholders – public or private bodies from investors, financial institutions, universities, research centres, business associations, industry networks, input suppliers, overseas importers and training institutions.

The Fisheries Departments in both countries as national competent authorities on fish technological upgrading must continue to provide leadership in conducting research, setting performance standards for technological upgrading and coming up with incentive support programs and enforcement measures.

## **CHAPTER 5**

### **FISH ENTERPRISES FINANCING ISSUES**

#### **5.1 Introduction**

While the literature on enterprise finance focuses largely on manufacturing industry and in developing countries concerns enterprises in clustering industry, this study attempts to fill the gap by examining enterprise financing experiences in the fishing industry of Uganda and The Gambia. Despite SMEs are considered as engine of growth and a springboard for industrialisation in most developing countries, it is paradoxical that they continue to face acute lack of formal financial access. Understanding the financial needs of fish SMEs at different stages, business environment factors, physical and financial infrastructure will enable bank managers and policy-makers to accurately support their financing requirements and growth. It is argued that the controversy in the empirical literature on the financing decisions of fish SMEs is based on the failure to take into account the different degrees of information opacity, enterprises' capabilities and needs at specific stages of their life cycles. Fish as an agricultural commodity is perishable requiring capabilities and institutional developments to maintain freshness and quality standards to boost production, processing and exports to lucrative markets. These require huge financial investment, skilled human resources and state-of-the-art equipments to participate and compete in global markets where sophistication of fish products matter. This makes fish SME financing study unique and complex in enterprise financing literature.

The importance attached to fish SMEs in the economy is crucial making their access to formal external debt and equity vital for growth. This is corroborated by Storey (1994) that

enterprise growth is constrained by cost of funding, availability and access to financial credit as investment is important for SMEs' viability and sustainability. SMEs capital structure financing differ from the large corporate bodies resulting to varying financing decisions and behaviours. Several important distinguishing factors between small and large businesses<sup>63</sup> are linked to informational opacity (Berger & Udell, 1998, 2006). Information asymmetries do affect small fish firms' formal access to external debt and equity finance. As a result, the lack of access to external finance may not be due to the low demand for it but the difficulties of accessing it (Djankov et al. 2007; Fafchamps et al. 1994, 1995 and Bigsten 2003). Accordingly, SMEs effective demand for formal finance depends on their ability to resolve asymmetric information (Beck et al. 2002<sup>64</sup>; Rocca et al. 2011; Stiglitz & Weiss, 1981).

Information opacity in terms of verification costs, adverse selection and moral hazard do affect small fish enterprises' financing decisions regarding external debt and equity finance<sup>65</sup>. The lack of access to external debt and equity may be due to fish entrepreneurs' choice but could also be due to weak local financial and institutional developments (Becks et al. 2004; Levine, 1997:688-690; Rocca et al. 2009:11; Hussein & Demetriades, 1996; Arestis & Demetraides, 1996; Aryeetey, 2005).

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<sup>63</sup> Large businesses use various financing options including stock markets, while small enterprises use external loans and owner's equity or support from family and friends. Small enterprises do not participate in stock markets due to high costs and too much formality.

<sup>64</sup> Beck, Demirguc-Kunt, & Maksimovic (2002) found that small businesses are severely credit constrained under weak local financial sector development.

<sup>65</sup> Berger & Udell (1998) argued that bank financing in positive net present value projects may be denied if the quality of the project (adverse selection problem) cannot be verified, as it is uncertain that funds will not be diverted from the project for abuse (moral hazard problem) and difficulty in monitoring the revenue (costly verification).

After financial reforms in most developing countries, SME financing attracted much attention due to their vital role as a springboard for industrialisation in most developing economies. To understand fish SMEs' financing determinants at different stages of business life cycle can be crucial to support their financing requirements. Fish SMEs lending decision-making has to take into account enterprises' characteristics, information opacity and their specific needs along the different stages of their life cycle.

The importance of SME financing in the economies of developing countries has been extensively researched in development economics literature though very sparse on the experiences of least developing countries (LDCs). SMEs and fish SMEs in particular contributes immensely to socio-economic development in terms of job creation, income for fishermen, foreign exchange through exports and provision of animal proteins to vast people who depend on it for livelihood support. The fishing industry is crucial in the economies of Uganda and The Gambia, with sector contributing significantly to food security; Gross Domestic Product (GDP), household incomes, tax revenues and employment (see Section 4.2.1 and 4.2.2).

Fish SMEs' importance in the economy depends to a greater extent on their unrestricted access to external finance. Despite their high risk profile, exposure to asymmetric information, low collateral and much informality, it is vital that policymakers and bank executives formulate appropriate strategies to reach this vital industry as shared by Rogers et al. (2009) and Fulgencio (2009). With fish SMEs acute lack of formal credit, Non-governmental organisations (NGOs) and other informal financing have emerged to fill the gap by addressing difficulties in financial credit access. However, several studies including Ledgerwood (2000), Robinson (2001), Rhyne & White (2003) and Hulme & Mosley (1996, 1998) highlighted their serious limitations in addressing the long-term sustainable financing

due to high donor dependence, limited funding capacity, weak management information systems and other corporate governance issues. These funding sources are not significant enough to support business expansion and growth potentials of fish SMEs. In this regard, governments in most developing economies have in the past assumed direct responsibility to extend financial credit to key sectors of the economy. They have therefore been in the forefront of promoting carefully crafted financial access in terms of direct allocation of funds to micro, small and medium-sized enterprises (MSMEs) and the agricultural sector under various institutional arrangements (Jaabi, 2004). However, some of these interventions were short-lived due mainly to high non-performing loans, political hijacking, limited outreach and resulting considerable losses. In most cases, the targeted people are never reached. The lack of access to formal credit from formal financial institutions has been identified as a major constrain to enterprise operations and growth prospects (Becks et al. 2006; Berger & Udell, 1998, 2006; Hulme & Mosley, 1998; Storey, 1994).

The low absorptive capacities of small fish enterprises have been linked to their low demand for formal financial credit with large part of their investment financed by informal and semi-formal finances. Many small fish enterprises resort to self-exclusion due to stringent conditionalities and fear for loan default (Aryeetey, 2005 on demand –side theory) while others turn to informal financing sources, such as personal, family and trade credit including pre-financing to address their financing needs.

Fish is a perishable commodity requiring capabilities and institutional building to enhance quality and hygiene fish handling along supply chains to boost production, processing and exports to lucrative markets. Fish industry is faced with stringent technical barriers and strict sanitary standards requiring huge financial investment, skilled human resources and

other capabilities to enhance competitiveness in global markets where sophistication of products matter. This makes fish SMEs access to formal finance crucial and complex quite different from other SMEs requiring public sector support in building right institutions and addressing collective action problems.

In this section, we attempt to address the research question three by examining fish SMEs' financing sources and constraints in Uganda and The Gambia using empirical survey data. Secondary data is also used to broaden the analysis of fish SMEs' financing patterns in the two countries. Methodologies as shown in Section 5.3 used Logit regression tests to assess correlations and levels of significance in fish enterprises' access to finance with regards to size and age. Use is also made of dependent variables of research and development (R&D) and export incidences to test correlations and levels of significance against key independent variables of financial access, age and size.

First, we examine the cost of doing business indicators as it affects fish SMEs' formal financial access in Uganda and The Gambia to compare with the survey data for a comprehensive analysis of the two countries' financial infrastructure.

## **5.2. Cost of Doing Business**

The findings of Gelb et al. (2007) show the five constraining factors face by enterprises including electricity, access to formal credit, corruption, macroeconomic stability and labour regulations which are fairly representative of the physical, regulatory and financial infrastructural obstacles enterprises face in most developing countries. The pattern suggests that electricity with 87.63% (Uganda) and 72.95% (The Gambia) and access to finance 62.90% (Uganda) and 68.03% (The Gambia) show severe obstacles to enterprise operations in the two countries with macroeconomic stability becoming next important factor at



21.21% in Uganda and 27.05% in The Gambia, corruption and labour laws as least constraints as shown in Table 5.1. This is in line with the survey data findings as shown in Table 5.14. Accordingly, severe investment climate factors affect enterprises in SSA retarding their growth opportunities, economic performance and contributions to the economy. These obstacles do affect all businesses regardless of size, however, small businesses tend to report financing constraints more frequently than larger firms (Gelb et al.2007; Berger & Udell 1998). These have the tendency of obstructing firm growth, greater visibility, technological sophistication, global connectivity and competitiveness.

**Table 5.1: Firms Ranking Business Environment Constraints**

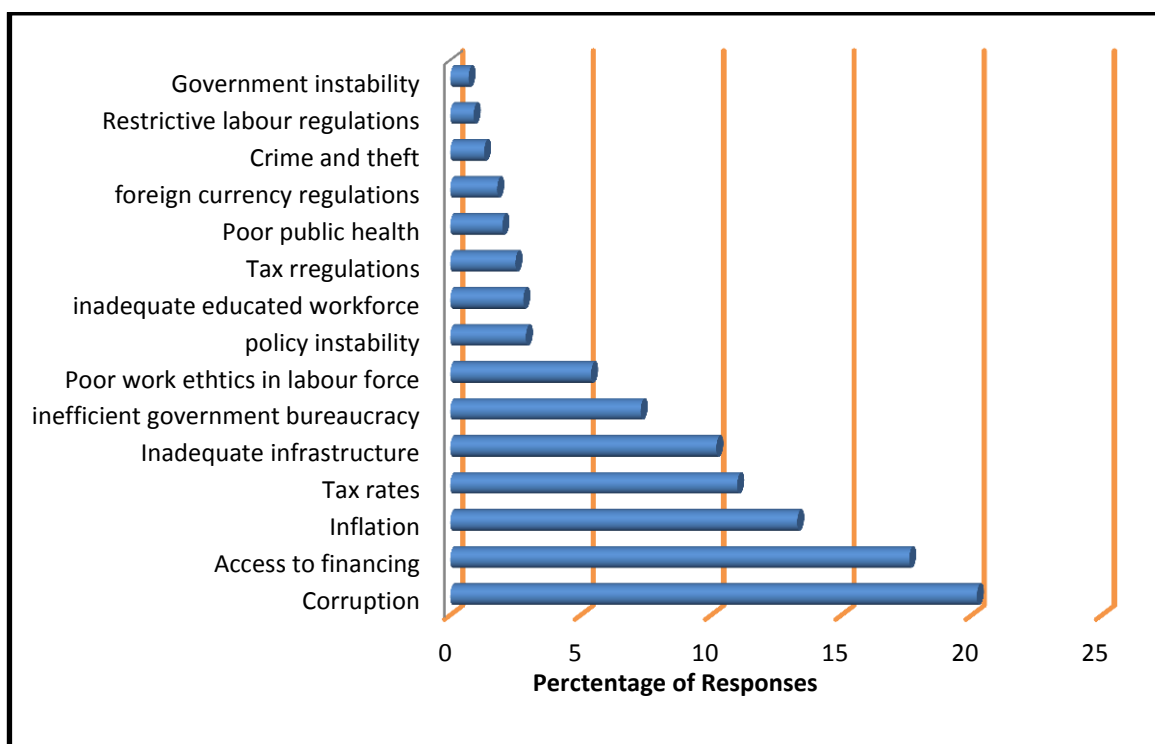
	<b>Electricity (Power)</b>	<b>Access to formal credit</b>	<b>Macroeconomic Stability</b>	<b>Corruption</b>	<b>Labour Regulations</b>
Uganda	87.63	62.90	21.51	20.97	1.61
The Gambia	72.95	68.03	27.05	14.75	3.28

Source: Gelb, A, Ramachandran, V, Shah, M.K and Turner, G (2007)

It is argued that access to formal debt seems to be much of a concern to small enterprises while across the board, SMEs are constrained by infrastructure, corruption, crime and political instability (Gelb et al. 2007) (also see Beck et al. 2008; Ayyagari et al. 2003; Fisman & Svensson, 2004; Sleuwaegen & Goedhuys, 2002). Enterprises in developed economies are better-off than those in LDCs of SSA due mainly to improved infrastructure, financial and institutional developments, better macroeconomic environment and physical infrastructural development. However, as economies become more sophisticated labour regulations and skill human resource become more binding challenges. Therefore, as economies developed, enterprises tend to substitute the constraints of energy, finance and

macroeconomic stability with new sets of constraints, such as, quality of governance, labour laws, tax administration, government capabilities to provide essential services and security becomes prominent.

As shown in Figure 5.1, corruption and access to finance are the key constraints among the obstacles enterprises face in Uganda. Inflation, tax rates, inadequate infrastructure, government bureaucracies and policy instability are also found to be constraining factors to small businesses. Tax regulations, foreign currency regulations, crime and theft and labour regulations are found to be less constraint in line with Gelb et al. (2007) findings.

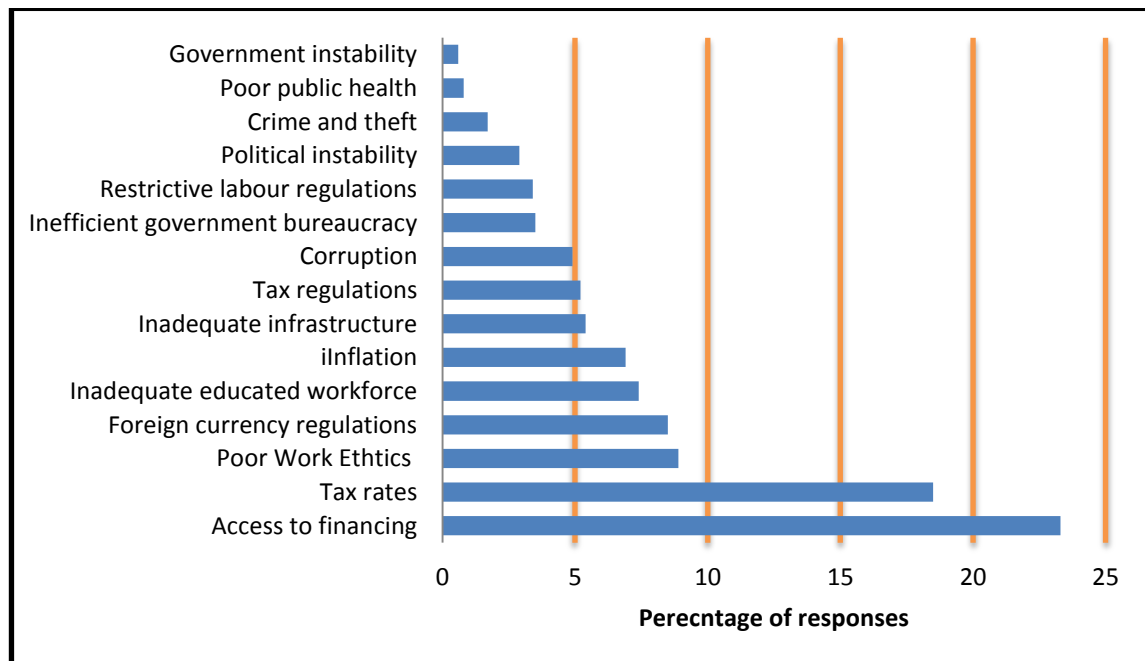


**Figure 5.1: Problematic Factors in Doing Business, Uganda, (2010)**

Note: From a list of 15 factors, respondents rated five most problematic for doing business in Uganda and these were ranked between 1 (most problematic) and 5 (less problematic). The bars in the figure show the responses weighted according to their rankings.

Source: World Economic Forum (2011)

As shown in Figure 5.2, access to finance is identified as a key constraint among the lot of obstacles enterprises face in The Gambia. Tax rates, inadequate skills, inflation, inadequate infrastructure, tax regulation and corruption are also found to be constraining factors to businesses (World Economic Forum, 2011). Political instability, crime and government instability are found less problematic.



**Figure 5.2: Problematic Factors in Doing Business, The Gambia, (2010)**

Note: From a list of 15 factors, respondents rated five most problematic for doing business in The Gambia and these were ranked between 1 (most problematic) and 5 (less problematic). The bars in the figure show the responses weighted according to their rankings,  
Source: World Economic Forum (2011)

### 5.3 Methodology

This section covers the sample size, specifications of equations, the dependent and independent variables. The study adopted a mix method research using qualitative survey questionnaire (shown in Appendix 1) and quantitative data on fish SMEs employing 6-100 full time employees.

### **5.3.1 Population and Sample**

The sample in this study was randomly selected based on International Finance Corporation (IFC), (2007) <sup>66</sup> definition of small and medium enterprises (see Table 2.1) as there is no comprehensive data on the population of fish enterprises in both countries. The sample of 160 respondents was administered on fish SMEs in Uganda and 130 in The Gambia.

### **5.3.2 Source of Data -Primary and Secondary**

The questionnaire survey was administered in Kampala and Entebbe (urban areas) and Kasenyi in Wakiso District, Masese in Jinja (rural areas) in Uganda and Banjul (urban), Bakau and Tanji (semi-urban and rural) in The Gambia due to high concentration of fishing activities in these areas. The study focused on fish industry players including fishermen, distributors, processors, exporters and traders captured in the sample. The structured questionnaire served as the main survey instrument coupled with one-to-one personal interviews conducted employing local languages to ease communication with some illiterate actors. The secondary data is sourced from Bank of Uganda (BOU), Uganda Bureau of Statistics (UBOS), Department of Fisheries Resources, Central Bank of The Gambia, The Gambia Bureau of Statistics (GBOS), The Gambia Department of Fisheries, Food and Agricultural Organisation (FAO) and The World Bank.

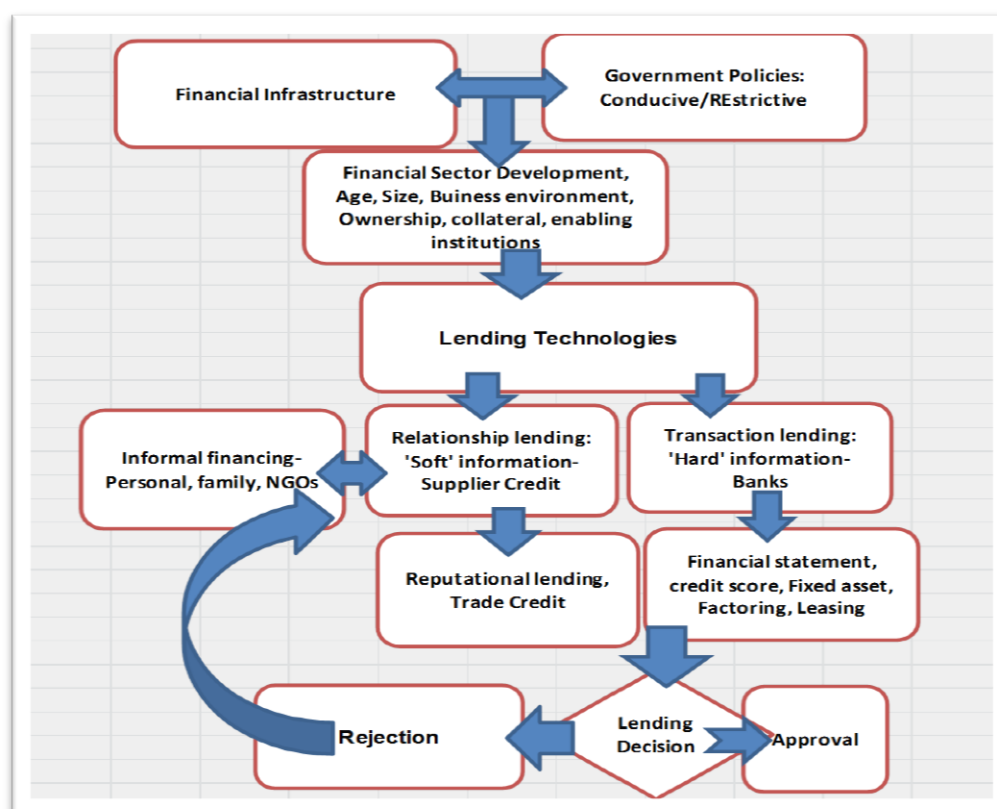
### **5.3.3 Conceptual Framework**

Figure 5.3 shows the lending technology in financing SMEs based on financial infrastructure and government policies (restrictive and conducive) in the financial sector.

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<sup>66</sup> With no single recognised definition of SMEs as it varies with countries and industries normally based on sales turnover, total assets and number of employees (Becks, 2006). We rely on International Finance Corporation (2007) definition of SMEs in LDCs as number of employees not more than 100.

Government policies regarding subsidies, interest rate caps, increased required reserves and anti-competition have the tendency of distorting the credit market and constrain fish SMEs' access to sustainable financing. Formal financial institutions apply hard information requirements in processing loan applications which most small enterprises find it difficult to comply with. Many small enterprises resort to semi-formal and informal financing sources which have been proven to be inadequate in meeting their financing requirements while others are suited for relationship lending through trade credit as shown in Figure 5.3.



**Figure 5.3: Conceptual Framework of Fish SME Financing**

Source: Adapted from Berger & Udell (1998)

### **5.3.4 Model and Variable Specification**

The main focus of this Chapter is the financing sources and constraints faced by fish SMEs in the two countries at different phases - start-up and working capital. Data on the following variables were collected and used for analysis in the equations in Tables 5.10 to 5.12.

#### **5.3.4.1 Enterprise – Level Variables**

The variables used in the analysis include financial access, Size, Age, R&D and Export Incidences. Logic regression is used instead of OLS as the dependent variables are dummies. Eviews version 7 is used to conduct the tests to assess the correlation and levels of significance between dependent and independent variables. We dropped ownership from the analysis due to low incidence of 1.4% and 3.75% foreign ownership in the sample for Uganda and The Gambia respectively. RDI is also dropped for The Gambia due to low incidence.

#### **5.3.4.2 Access to Finance**

A key question was asked as to whether fish enterprises attempted to access external finance. Enterprises that do not access external finance reported a number of constraints that limit their access (see Figure 5.10). Request for finance was then examined against those that were approved and the ones rejected.

Then, Access to Finance (FinAccess) was estimated as:

FinAccess Approved = 1,      FA Rejected = 0

#### **5.3.4.3 Sources of Finance**

Wide range of financing sources are identified to assess fish SMEs' sources of finance including personal, support from family and friends, commercial bank, trade credit, microfinance, internal funds, equity, savings and cooperative credits (SACCOs) and government credit schemes. These were assessed at start-up and existing businesses.

#### **5.3.4.4 Technological Capabilities**

R&D incidence (RDI) is a dummy used as proxy of technological upgrading measured as:

RDI = 1 if enterprise reported Yes (participates in R&D)

RDI = 0 if enterprise reported No (no participation in R&D)

#### **5.3.4.5 Size Variable**

Size is measured by full-time number of employees. Due to informality of many fish SMEs, keeping proper records on total assets and turnover can be difficult, hence making use of number of employees as the best proxy of size (Size\_EM). A dummy variable was used to classify size into two categories – small and medium enterprises.

Small Enterprise ( $S_1 = 6 - 20$  employees)

Medium Enterprise ( $S_2 = 21 - 100$  employees)

#### **5.3.4.6 Age Variable**

Age is measured as:  $A_i = \text{Number of years of establishment to December 31, 2010.}$

#### 5.3.4.7 Export Incidence

Fish enterprises were asked whether they participate in fish export market. Many of them do sell to local markets for consumption; some sell to processing and exporting firms while others export directly to sub-regional and overseas markets

Then, Export Incidence (XI) is estimated as:

EI 1 = (Yes) if fish SME participate in export market and EI 0 = (No) if fish SME do not participate in export market

#### 5.3.5 Specifications of Statistical Equations

The study is mix research in nature using both qualitative and quantitative methods on fish SMEs in the two countries. In addressing the research methodology, use is made of structured questionnaire and personal interviews of fish SMEs as the main survey instrument. Study location covered both rural and urban areas to assess their sources and obstacles to formal financial credit and other responses in the industry. The section introduced methodologies and data in identifying the financing sources, types and funding structures, technological capabilities and economic performance of fish SMEs in Uganda and The Gambia.

#### Specification of Equations:

$$\text{Logit: FinAccess} = C + \beta_1 \text{Size\_EM} + \beta_2 \text{Age} + \mu \quad (1)$$

$$\text{Logit: XI} = C + \beta_1 \text{Size\_EM} + \beta_2 \text{Age} + \beta_3 \text{FinAccess} + \mu \quad (2)$$

$$\text{Logit: RDI} = C + \beta_1 \text{Size\_EM} + \beta_2 \text{Age} + \beta_3 \text{FinAccess} + \mu \quad (3)$$



Financial access being the key variable in this study, the above equations was chosen to test their level of correlation and significance with important variables that to a greater extent impact on formal financial credit access. We also examine how financial access relates to export incidence and RDI in equations (2) and (3).

### **5.3.6 Formulation of Hypotheses**

Age is expected to be positively related to export performance and technological capabilities as enterprises with better financial access and gather technological know-how over time can perform better than new start-ups. However Robb (2002) and Rasiah (2004) argued that young enterprises with existing superior technology and external finance can perform better, particularly foreign firms during start-up. With this inconclusive finding, we assume the first hypothesis as follows:

**H1 = Younger fish enterprises face higher formal financing constraints than older enterprises**

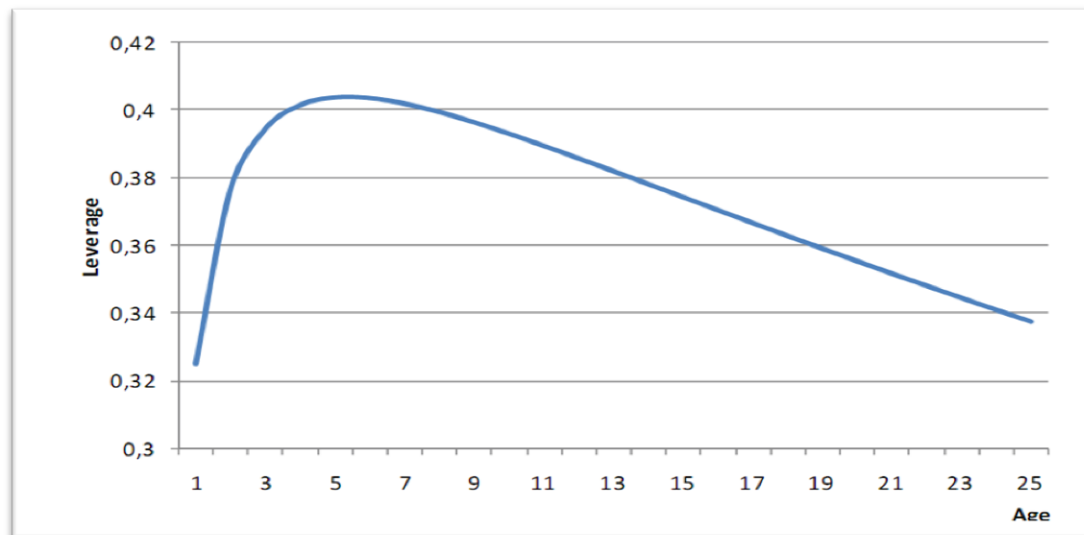
Several studies including Schiffer & Weder (2001), Rocca et al. (2009, 2011) and Beck et al. (2006) have argued that size, age and ownership largely predict enterprises' financing obstacles (also see Carpenter et al. 2002). "Small enterprises that reported access to formal finance as a major constrain is 39% compared with 36% by medium and 32% by large enterprises" (Beck, 2007:4). Small enterprises are said to finance less than 10% of their investments with external debt relying more on owners' capital and informal finance compared to more than 20% of bank credit by large firms (Beck, 2007), (also see Beck et al. 2005). The high financing constraints reported by small enterprises matched not only with literature in both advanced and developing economies but also in line with asymmetric information and pecking order theories (Berger & Udell, 1998; Becks, 2006, 2007; Myer,

1984; Rocca et al. 2011). It is interesting to subject the survey data to this test to confirm or deny fish SMEs' financing literature.

Despite an overwhelming attention to enterprise financing, consensus on its capital structure financing along the course of life cycle is rather inconclusive. It is vital to increase understanding into SME financing choices, in particular identifying an optimal capital structure and the drivers that can explain financial leverage decisions along the different stages of enterprise life cycle.

In many contexts, it has been argued that enterprise age grows with financial leverage up to a point of maturity when it rebalances its financing sources (Rocca et al. 2011; Michaelas et al. 1999). In other contexts, an external debt is fundamental for young firms and financial leverage is rebalanced with more priority to retained earnings as business consolidates. This was corroborated by Robb (2002) and Petersen & Rajan (1994). This manifests the different views in enterprise finance literature. Figure 5.4 show the enterprise financing growing with age as argued by Rocca et al. (2009, 2011) among other studies that at start-up due to severe opacity, access to external debt is limited. This is improved upon as enterprises build required reputation, accumulate collateral assets and meet 'hard information' requirements. At maturity, enterprises rebalance external debt and equity finance with accumulated profit earnings, hence financial leverage declines.

Smaller firms due to their flexibility and lower cost exposure relative to larger firms, become more labour productive. The advantages of producing a part of the whole product in a subcontracting relationship with large firms and in the fishing industry, selling large part of their catches to large processing and exporting firms or their agents at landing sites, thus passes the costs of cooling and quality maintenance to the large firms.



**Figure 5.4: The Relationship Effect of Age on Financial Leverage**

Source: Rocca et al (2011:19)

This enables small fish enterprises to incur lesser cost and remain productive particularly in predominantly unskilled artisanal fish enterprises. However, small firms as shown in the literature exhibit greater information asymmetric and other capabilities challenges thus restricting their access to formal finance. This leads us to the second hypothesis:

**H2= Small fish enterprises face higher financing constraints than large enterprises**

With the huge financing requirements in fish processing and exports, enterprises with greater financial access are expected to participate in the export market than enterprises using personal and informal financing sources. This led us to the third hypothesis as follows:

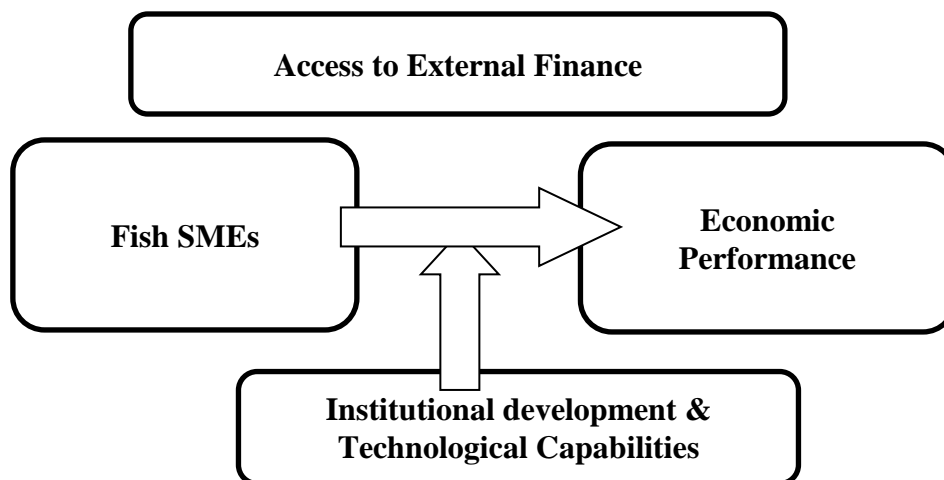
**H3 = Fish Enterprises accessing external finance participate in export market than those lacking access to finance**

H3 suggests that enterprises that access external credit are likely to participate in export market than those lacking access to formal external finance. This is tested to accept or reject this hypothesis on the two countries' fish SMEs.

To increase profit margins, fish enterprises must have basic capabilities to produce in large quantities, maintain high quality fish products, acquire right equipments and link effectively with suppliers and customers in the industry. Accordingly, the works of Schumpeter (1934) and Lall (1992) have argued that large enterprises are more likely to undertake R&D than small enterprises. The fourth hypothesis on R&D Incidence is estimated as:

**H4= Large enterprises are more likely to undertake R&D than small enterprises**

H4 suggests the likelihood of large enterprises undertaking R&D than small enterprises. Due to high cost of machinery, technology, skills and product developments, large enterprises with relative convenient access to external finance are better positioned to undertake R&D than small enterprises. Particularly in poor developing economies where equipments and human resource skills are increasing challenges making small enterprises' unlikely to participate in R&D (see Lall, 1992, 2001, 2005; Rasiah 2007, 2011; UNIDO, 2004). The study subjects the primary data to this test to accept or reject H4. Figure 5.5 shows that access to formal finance facilitates fish SMEs' economic performance with technological capabilities playing a mediating role. The empirical test examines whether fish SMEs economic performance is influenced by their access to external finance and technological capability in Uganda and The Gambia.



**Figure 5.5: Analytical Framework of Fish SME Economic Performance**

Source: Author (2012)

## 5.4 Findings

With mixed method adopted to answer the research questions, the findings draw upon the results from statistical tests on the qualitative survey and the quantitative data access from secondary sources. Sections 5.4.5 through to 5.4.7 analyses made use primary data to present the financing sources and constraints of fish SMEs in Uganda and The Gambia and test for correlations and statistical levels of significance among financial access to external credit, export incidence and RDI against various independent variables. Also in this section, we introduce the secondary data to complement the empirical data analysis to further enrich the analysis on fish enterprise financing in economic development of Uganda and The Gambia.

### **5.4.1 Public and Private Sector Financing**

We examine the public and private sector financing, sectoral financing of private sector lending and share of agricultural production (fish) financing in private sector lending to determine the level of formal banking sector lending to this vital industry. As shown in Table 5.2, public sector financing dominated the formal financing with many banks considering it less risky relative to private sector financing. This limits private sector financing thus impact on their growth and contribution to the respective economies.

#### **5.4.1.1 Uganda**

SME financing by commercial banks face severe challenges as shown in Table 5.2 crowded out by the public sector financing in most years. Despite the development targets and slogans in most SSA recognising SMEs as growth-led economies and engine of industrialisation, private sector remains less formally financed. This retards enterprise growth and development as argued by Becks et al. (2004, 2006; Storey, 1994; Berger & Udell, 1998; Michaelas et al. 1999; Rocca et al. 2011). Private sector financing was at its highest at 55.85% in Uganda in 1998 due to more sectoral financing before dropping gradually to its lowest at 33.81% 2002. It rose again to 50.82% in 2007 when it took over public sector financing until 2009. Public sector financing at 44.2% in 1998 rose to its highest at 66.2% in 2002 explained by increased fiscal financing before dropping consistently through to 52.8% in 2010.

For most part of the period, public sector financing dominated making less funds available for private sector financing and thus retarding their economic performance, growth and contributions to the economy. However, with associated adverse business and financial infrastructure, inherent asymmetric information and firm level inefficiencies prevalent in

SSA, banks are forced to lend to the public sector to control the potential high risk in SME financing. Efforts to address constraints in the lending infrastructure, severe business environment, financial and institutional weaknesses, among others will go a long way in enhancing private sector financing in line with Gelb et al. (2007); Demirguc-kunt (2007); Berger & Udell, (1998, 2002).

**Table 5.2: Public and Private Sector Financing, Uganda, 1998- 2010**

	<b>Public Sector USD '000</b>	<b>Private Sector USD '000</b>	<b>Public sector Financing (%)</b>	<b>Private Sector Financing (%)</b>
1998	286.56	362.46	44.2	55.85
1999	314.16	362.21	46.4	53.55
2000	320.27	369.29	46.4	53.55
2001	479.79	368.32	56.6	43.43
2002	720.76	368.12	66.2	33.81
2003	754.46	423.83	64.0	35.97
2004	876.82	551.22	61.4	38.60
2005	972.51	649.43	60.0	40.04
2006	1019.39	781.13	56.6	43.38
2007	1090.94	1127.3	49.2	50.82
2008	1469.25	1676.3	46.7	53.29
2009	1704.5	1738.1	49.5	50.49
2010	2196.24	1965.6	52.8	47.23

Source: Bank of Uganda (2011)

Private sector financing rose above public sector financing in the initial three years (1998 – 2000) but overtaken by public sector from 2001 through to 2006. Private sector declined sharply to its lowest at 33.8% in 2002 then rose consistently through to 53.3% in 2008 associated with increasing trade, transport and building and construction financing. Public sector increase manifests low private sector financing and the conservative lending of commercial banks in private sector financing denying fish SMEs the needed financing for growth.

#### **5.4.1.2 The Gambia**

Private sector financing by the formal banking sector in The Gambia similar to Uganda, face severe challenges as shown in Table 5.3 dominated by public sector financing. This retards growth and developments of the private sector as argued by Becks et al. (2004, 2006). Private sector financing was 48% in 1998 dropping to 44% in 2000. It reached its highest at 64% in 2003 due to increases in building and construction, distributive trade, tourism and other financing before declining through to its lowest at 41% and 42% in 2009 and 2010 respectively associated with tight lending measures of the banking sector, denying SMEs across key sectors the needed financing requirements for growth. This expansion of private sector financing in 2003 is associated with the entrance of new banks into the banking sector and the urgency to reduce domestic debt by government.

With adverse business environment, inherent asymmetric information and firm level inefficiencies, banks are inclined to lend to the public sector even with reduced interest rate relative to lending to private sector with all the high risk profile. Private sector lending can fetch 20-25% rate of interest compared with 12-15% investment income in government bonds and other public sector loans, the difference showing the risk profile. Efforts to address constraints in the lending infrastructure, business environment, institutional development and firm capabilities will go a long way in enhancing private sector financing.

Public and private sector financing converged in 1999 at 50% each of total financing thereafter public sector rose above private sector through to 2001. Public sector declined sharply to its lowest at 36% in 2003 due mainly to more trade and construction financing before overtaking private sector financing from 2005 through to 2010 (see Table 5.3).



Private sector financing dropped to its lowest at 35% in 2001 as more funds allocated to public sector financing.

**Table 5.3: Public and Private Sector Financing, The Gambia, 1998 - 2010**

	<b>Public Sector USD '000</b>	<b>Private Sector USD '000</b>	<b>Public sector Financing (%)</b>	<b>% Private Sector Financing (%)</b>
1998	48874	45987	52	48
1999	52558	52294	50	50
2000	65274	50948	56	44
2001	74530	40684	65	35
2002	53908	59919	47	53
2003	31221	54394	36	64
2004	42676	47446	47	53
2005	71305	62709	53	47
2006	88615	79308	53	47
2007	121774	104398	54	46
2008	153772	124460	55	45
2009	170682	119656	59	41
2010	232741	169031	58	42

Source: Central Bank of The Gambia, (2011)

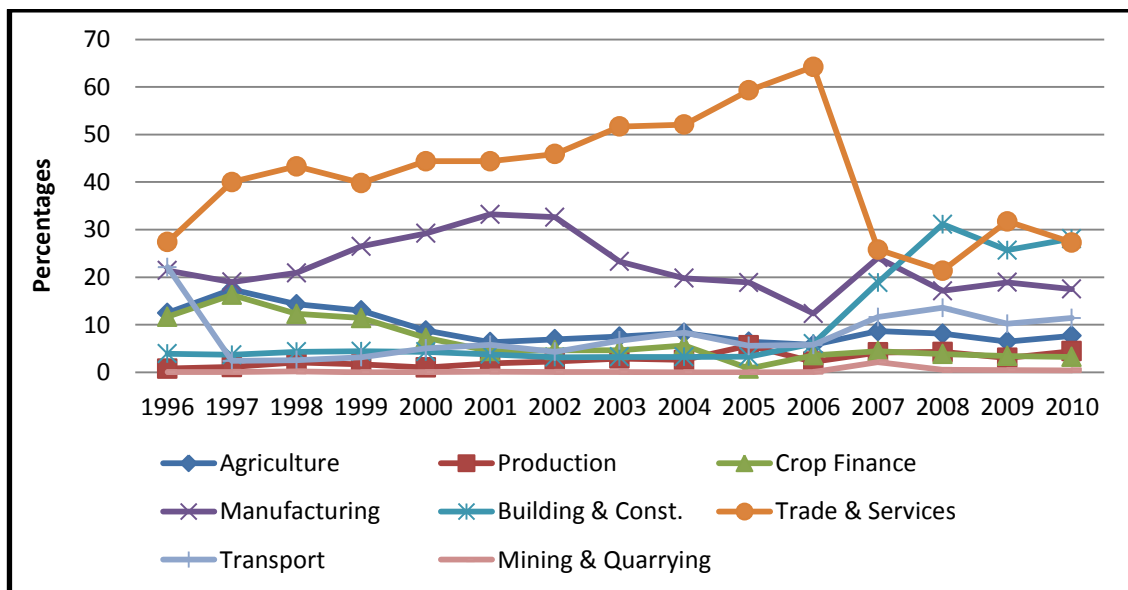
It is important to note that public sector debt is a concern in The Gambia. The government and the CBG are instituting measures to reverse the situation as it consistently features in IMF's periodic inspection reports. For private sector to be engine of growth and seedbed for industrialisation as captured prominently in the country's vision 2020, much funding must be directed to the sector to play its crucial role in socio-economic development.

#### **5.4.2 Sectoral Financing**

This section examines the formal financing of key sectors in Uganda and The Gambia. Trade, building and construction, personal and transport dominates private sector financing in both countries with agriculture, mining and quarrying the least financed.

### 5.4.2.1 Uganda

Figure 5.6 presents the graphic picture of Table 5.4 showing the financing of different sectors in Ugandan economy from 1996 through to 2010. It shows the sectoral financing of private sector in Uganda with distributive trade taking the largest share until 2007 when it dropped sharply before rising steadily through to 2010. At the level of UgShs705.8 billion (68.1% of total private sector financing) in 2006, it declined to UgShs208.6 billion (15.3% of total financing) in 2007. The significant drop in distributive trade is compensated for by building and construction, manufacturing and transport as shown in Figure 5.6.



**Figure 5.6 Sectoral Financing in Private Sector lending, Uganda**

Source: Bank of Uganda (2011)

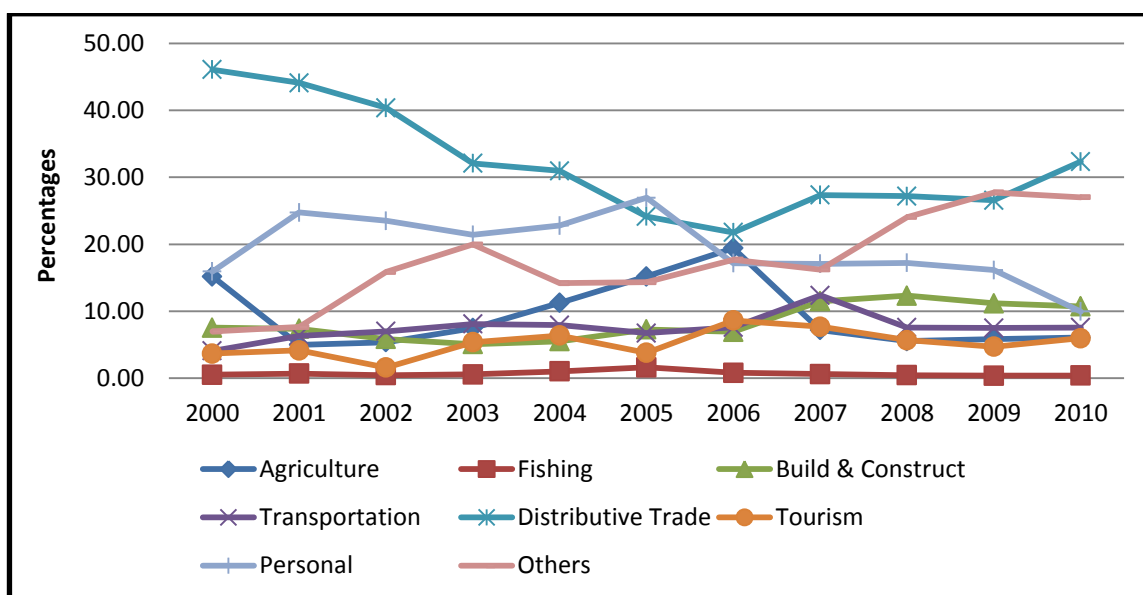
Agriculture started well in 1996 but declined consistently throughout the period despite remaining the main food basket in Uganda and employing the majority of the rural population. As shown in Figure 5.6, crop financing is greater than production financing limiting the supply of essential food crops into the market. Agricultural sector is the fifth largest financed sector until 2005 when it dropped just above mining and quarrying. It

registered 12.5% in 1996 to its highest of 17.4% in 1997. It dropped thereafter to 8.8% in 2000 further to its lowest of 5.8% in 2001 before surging up to 7.67% in 2010. It is observed that agricultural financing has been on the decline during the period while other sectors except mining, have been on the increase. This is associated with monitoring and appraisal problems, information opacity, low firm capabilities and high risk profile of agricultural activities due to varying rain fall patterns affecting formal external financing to this vital sector.

Distributive trade, manufacturing, building and construction and transport dominated the sectoral financing as shown in Figure 5.6 and Table 5.4. Manufacturing is second largest sectoral financing after distributive trade followed by building and construction then transportation. Agriculture and mining and quarrying are the least sector financed. Distributive trade dropped significantly in 2007 to 2008 compensated for by increases in building and construction, transport and manufacturing.

#### **5.4.2.2 The Gambia**

Figure 5.7 shows a graphic presentation of Table 5.5 manifesting key sector financing in The Gambia from 2000 through to 2010. The sectoral financing is dominated by building and construction, distributive trade, personal and other financing. Agriculture, tourism and fishing remain low in formal bank financing.



**Figure 5.7 Sectoral Financing in Private Sector Lending, The Gambia**

Source: Central Bank of The Gambia, (2011)

Long-term financing for SMEs is largely unavailable in The Gambia. Bank financing to private sector and fish SMEs in particular, are short-term associated with the dominance of small-scale artisanal fishermen lacking technical and management skills, significant asymmetric information and low asset accumulation to secure loans. Figure 5.7 shows low agricultural financing at 6.05% of total private sector financing with fishing industry just making up to 0.41% in 2010. Distributive trade, personal, building and construction and other financing dominated the private sector financing despite the importance of agriculture and fishing to the economy. The key sectoral financing of The Gambia's private sector like Uganda is distributive trade capturing most of the financing as depicted in Figure 5.7. Personal funding also remained significant despite nose-diving from 2005 through to 2010.

**Table 5.4 Sectoral Financing by Commercial banks, Uganda, (Bns Ugshs)**

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Agriculture	60.8	71.2	64.7	75.3	47.3	34.5	37.2	53.6	70.6	57.2	63.38	69.7	90.42	117.3	177
Production	3.78	4.53	9.31	9.56	5.43	10.3	12.3	20.7	22.2	50.1	24.4	33.8	47.82	55.02	102
Crop Finance	57.1	66.7	55.4	65.7	38.9	24.2	24.9	33.2	48.4	7.05	39.19	35.9	42.6	62.26	75.1
Manufacturing	104	78	94.7	153	157	180	175	166	168	168	135.8	194	190.6	342.3	405
Building & Const.	19.1	15.1	19.5	25.6	23.2	20.5	16.9	23.1	27.5	29.3	66.38	153	346.2	464.4	650
Trade & Services	133	164	195	230	239	242	246	369	444	526	705.4	208	237.9	573.8	632
Transport	107	9.87	11.6	18.3	27.1	31.4	23.1	47.7	70.9	49.5	63.2	93.8	150.8	184.7	264
Mining, Quarry	0.28	0.31	0.89	0.06	0.19	0.87	0.4	0.47	0.09	0.13	0.73	17.3	5.89	8.72	9.67
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Total	486	409	451	577	538	544	536	714	852	887	1098	807	1112	1808	2317
Agriculture	12.5	17.4	14.3	13	8.8	6.34	6.93	7.5	8.28	6.44	5.77	8.64	8.13	6.48	7.67
Production	0.78	1.11	2.06	1.66	1.01	1.88	2.28	2.89	2.61	5.65	2.22	4.19	4.3	3.04	4.45
Crop Finance	11.7	16.3	12.3	11.4	7.24	4.45	4.64	4.65	5.67	0.79	3.57	4.45	3.83	3.44	3.24
Manufacturing	21.4	19	20.9	26.5	29.2	33.2	32.6	23.3	19.8	18.9	12.36	24.1	17.14	18.93	17.5
Building & Const.	3.93	3.68	4.31	4.43	4.32	3.77	3.17	3.23	3.23	3.31	6.04	18.9	31.13	25.68	28.1
Trade & Services	27.4	40	43.3	39.8	44.4	44.4	45.9	51.7	52.1	59.3	64.22	25.8	21.38	31.72	27.3
Transport	22.1	2.41	2.56	3.16	5.03	5.77	4.31	6.67	8.32	5.57	5.75	11.63	13.56	10.21	11.4
Mining & Quarrying	0.06	0.07	0.19	0.01	0.04	0.16	0.07	0.07	0.01	0.01	0.066	2.14	0.53	0.48	0.42

Source: Bank of Uganda (2011)

**Table 5.5****Sectoral Financing by Commercial Bank, The Gambia, (Mns Dal.)**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Agriculture	102.83	39.63	71.7	139.45	181.4	300.98	462.18	189.39	195.48	262.41	289.76
Fishing	3.46	5.47	5.94	10.5	16.66	31.97	19.06	16.24	15.87	16.87	19.64
Build & Constr.	51.11	58.41	78.36	94.99	89.06	144.38	164.96	302.17	435.73	502.38	513.42
Transportation	27.7	50.16	93.61	150.78	128	133.41	180.72	325.6	267.82	336.55	361.64
Distribut. Trade	311.87	349.6	539.95	598.19	499.41	478.7	517.95	719.77	960.76	1194.3	1547.2
Tourism	24.95	32.84	21.47	100.12	102.92	75.44	205.33	202.27	201.01	210.93	285.01
Personal	107.85	196.05	314.35	399.12	367.57	533.9	408.62	449.46	609.07	725.32	476.14
Others	47.22	60.61	212.03	372.26	228.91	283.85	421.1	426.73	850.51	1246.49	1292.8
<b>Total</b>	<b>676.99</b>	<b>792.77</b>	<b>1337.41</b>	<b>1865.41</b>	<b>1613.93</b>	<b>1982.63</b>	<b>2379.92</b>	<b>2631.63</b>	<b>3536.25</b>	<b>4495.25</b>	<b>4785.61</b>
	%	%	%	%	%	%	%	%	%	%	%
Agriculture	15.19	5.00	5.36	7.48	11.24	15.18	19.42	7.20	5.53	5.84	6.05
Fishing	0.51	0.69	0.44	0.56	1.03	1.61	0.80	0.62	0.45	0.38	0.41
Build & Constr.	7.55	7.37	5.86	5.09	5.52	7.28	6.93	11.48	12.32	11.18	10.73
Transportation	4.09	6.33	7.00	8.08	7.93	6.73	7.59	12.37	7.57	7.49	7.56
Distrib. Trade	46.07	44.10	40.37	32.07	30.94	24.14	21.76	27.35	27.17	26.57	32.33
Tourism	3.69	4.14	1.61	5.37	6.38	3.81	8.63	7.69	5.68	4.69	5.96
Personal	15.93	24.73	23.50	21.40	22.77	26.93	17.17	17.08	17.22	16.14	9.95
Others	6.97	7.65	15.85	19.96	14.18	14.32	17.69	16.22	24.05	27.73	27.01

Source: Central Bank of The Gambia (2011)

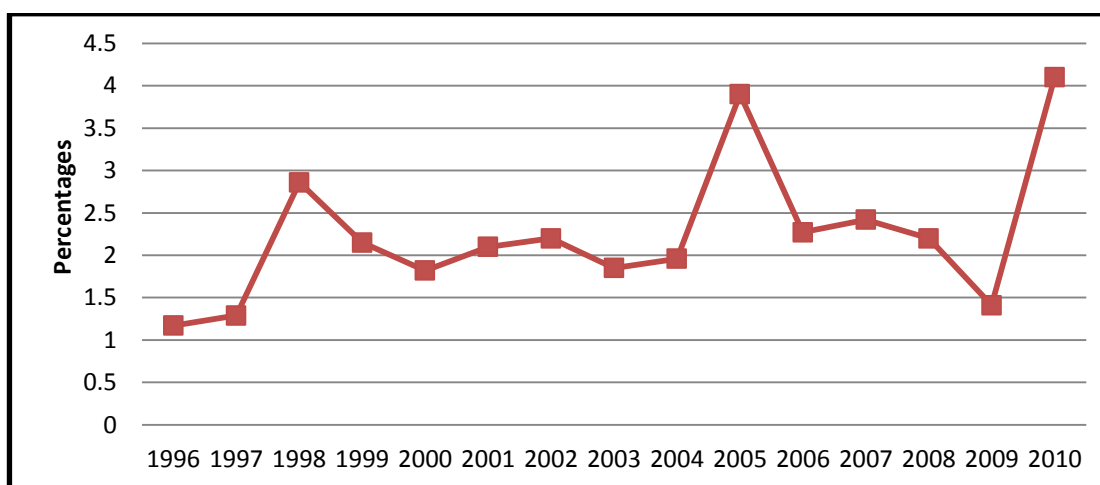
Agricultural financing reported an erratic trend during the period rising from 2001 through to 2006 when it dropped consistently through to 2010 explained by the dominant small-scale agricultural activities with associated high risk profile. Fishing, a component of agricultural sector remains at the bottom recording 0.51% of total financing in 2000 up to 1.6% in 2005 to its lowest at 0.37% in 2010 as shown in Figure 5.7 and Table 5.5.

### **5.4.3 Fisheries Industry Financing in Private Sector Lending**

This section shows further breakdown of the agricultural sector to assess fisheries banking sector financing in the two countries. We present the agricultural production financing including fisheries to total formal private sector lending (as actual fisheries financing data is not available in Uganda) and lending to fisheries industry to total private sector financing in The Gambia.

#### **5.4.3.1 Uganda**

Figure 5.8 shows agricultural production financing (including fisheries) in total private sector lending in Uganda. It recorded its highest level in 2010 at 4.1% with a least share of 1.17% in 1996. It gradually grew through to 1998 at 2.86% mainly due to improvements in coffee production thereafter declining steadily to 1.96% in 2004. It rose sharply to 3.9% in 2005 associated with full fisheries recovery from export crisis and increased coffee production and marketing. It however, dropped once again through to 1.41% in 2009 associated with overfished Nile perch and competition in global markets before surging up to its highest at 4.1% in 2010. The actual fish financing data is not readily available, however, it could be far less than the agricultural production share, meaning despite the importance of fish and fish products in the economy of Uganda, its financing remains miniscule in the formal banking sector.



**Figure 5.8: Agricultural Production Financing in Private Sector Lending, Uganda**  
Source: Bank of Uganda (2011)

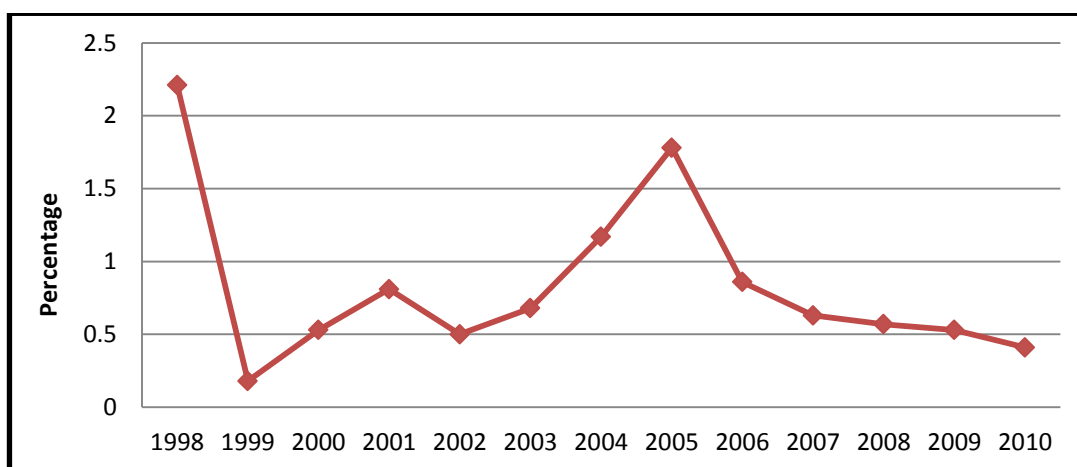
The trend shows an erratic financing level attracting meagre bank financing to the sector. This could be linked to significant number of small artisanal fishermen who due to their size, fragility and informality find it difficult to access formal credit from the banking sector. Some small-scale enterprises opt for self-exclusion in bank finance due to difficulties in access credit and prefer tapping informal financing sources including trade credit. This is corroborated by the survey findings (see Table 5.8, 5.9 and Figure 5.10) reporting fish SME financing constraints in Uganda, requiring a greater effort to increase financing to this vital industry.

#### **5.4.3.2 The Gambia**

Figure 5.9 shows fisheries sector financing to total private sector financing in The Gambia. It recorded its highest level in 1998 at 2.21% declining to its lowest at 0.18% in 1999 due to low developed industry. The trend shows an erratic financing level attracting meagre financing in the industry. This is linked to the industry performance predominantly dominated by artisanal fishermen who due to small size and informality find it extremely difficult to access external bank financing. The prevalence of small-sized fish enterprises



associated with information opacity, low asset accumulation coupled with adverse business environment (see Gelb et al. 2007) are constrained by access to formal finance with artisanal fish enterprises financing recording insignificant levels as shown in Figure 5.9 and Table 5.5. This is corroborated by the survey findings due largely to predominant artisanal fish enterprises operating in the fisheries sector constrained by host of operational and managerial bottlenecks.



**Figure 5.9: Fisheries Financing in Private Sector Lending, The Gambia**

Source: Central Bank of The Gambia (2011)

Table 5.6 shows project financing of fish SMEs by The Gambia Artisanal Fisheries Project, The African Development Bank sponsored project. The six-year project reported D27.26 million or USD \$0.95 million loan disbursements to fish SMEs across the country with a poor average default rate of 78.6%. It recorded its weakest recovery in 2008 with 98.47% non-performing loans and 94.89% in 2009. There are a number of factors responsible for such a poor recovery including though not limited to the following:

- i. The Artisanal Fisheries Project lacked the technical and human resource skills to manage loan funds.
- ii. The appraisal and monitoring functions remained weak as some SMEs financed are not players in the fisheries sector.

- iii. Diversion of funds to other activities was high contrary to project mission.
- iv. Most fishermen are immigrants from neighbouring countries with the risk of disappearing with loans across the borders making recovery extremely difficult.

**Table 5.6: Artisanal Fisheries Project Financing of Fish SMEs, The Gambia**

<b>Year</b>	<b>Fish Loan Disbursements – (GMB ‘000Dalasis)</b>	<b>Outstanding Loans – (GMB Dalasis) ‘000</b>	<b>Percentage Outstanding</b>
2004	310.00	271.00	87.48
2005	2,883.00	1,510.00	52.38
2006	11,341.00	7,888.00	69.55
2007	9,248.00	8,376.00	90.57
2008	2,381.00	2,345.00	98.47
2009	1,101 .00	1,045.00	94.89
<b>Total</b>	<b>27,264.00</b>	<b>21,435.00</b>	<b>78.62</b>

Source: The Gambia Artisanal Fisheries Project (2011)

The findings show acute financing constraints to fish SMEs in The Gambia with both the secondary data (See Figures 5.4 and 5.5) and the empirical data. More public sector support and collaborative effort are needed to address fish SMEs financing needs.

#### **5.4.4 Financial Environment**

The section examines sources and constraints of finance face by fish SMEs in Uganda and The Gambia. The analysis in this section is interpretative. Further analysis of the financial variables against performance and capability variables are assessed in the next section.

The section focuses on the primary data on fish industry in Uganda and The Gambia. Table 5.7 shows the players captured in the sample comprising of fishermen, distributors,

processors, exporters and traders. Small enterprises comprised of 88 (55%) and medium enterprises 72 actors (45%) in Uganda. Fish small and medium enterprises form 85 (65.4%) and 45 (34.6%) in The Gambia as shown in Table 5.7.

**Table 5.7: Types of Fish SMEs, Uganda, The Gambia, 2010**

	Uganda		The Gambia	
	Small Enterprises	Medium Enterprises	Small Enterprises	Medium Enterprises
Fishermen	28 (31.8%)	7 (9.7%)	34 (40%)	18(40%)
Distributors	15(17%)	31 (43.1%)	9 (10.6%)	10 (22.2%)
Processors	14 (15.9%)	16 (22.2%)	16 (18.8%)	10 (22.2%)
Exporters	0 (0.0%)	7 (9.7%)	0 (0.0%)	2 (4.4%)
Traders	31 (35.2%)	11 (15.3%)	26 (30.6%)	5 (11.1%)
Total	88 (100%)	72 (100%)	85 (100%)	45 (100%)

Source: Author's Survey (2011)

As shown in Table 5.7, distributors constitute the highest with 43.1% among medium enterprises followed by fish processors of 22.2% with the least being fishermen and exporters in Uganda. The sample in The Gambia shows fishermen with 40% followed by distributors and processors at 22.2% each. Traders and fishermen dominated the small enterprises in both countries.

#### **5.4.5 Sources of Financing**

The sources of finance are analysed at two different periods – start-up and working capital financing of existing fish enterprises showing different financing structures.

#### **5.4.5.1 Start-Ups**

Fish SME start-up financing sources are dominated by personal and family funding with 72.7% (Uganda) and 74.1% (The Gambia) mainly among small fish enterprises. However, informal financing declined significantly for medium enterprises due mainly to increase size, low information asymmetries, more visibility and formality. Government credit schemes financing is lower among small enterprises relative to medium enterprises as shown in Table 5.8. Bank financing was the least among small enterprises due mainly to their high risk profile at start-up as highlighted in the literature.

Government project financing of fish SMEs in collaboration with international development agencies such as The African Development Bank (AfDB), International Fund for Agricultural Development (IFAD), UNIDO and The Food and Agriculture Organisation (FAO) are prominent at start-up financing in both countries but targeted largely medium enterprises.

Many small enterprises rely mainly on personal, family and trade credit funding at start-up compared to medium enterprises on various financing sources such as bank, microfinance, SACCOs and government financing. The funds managed by donor projects are retailed to fish SMEs through financial institutions licensed by the two Central Banks. It is important to note that timely credit decisions and delivery, according to Rhyne (2000); Robinson (2001); Recupero (2002) and Jaabi (2004) are key important factors for fish enterprises as greater business opportunities, such as, lucrative projects and growth opportunities could be lost with untimely loans.

**Table 5.8: Start-up Financing Sources of Fish SMEs**

	Uganda		The Gambia	
	Small Enterprises	Medium Enterprises	Small Enterprises	Medium Enterprises
Personal	51 (57.9%)	20 (27.8%)	46 (54.1%)	7 (12.7%)
Family	13 (14.8%)	2 (2.8%)	17 (20%)	0 (0%)
Bank	0 (0%)	3 (4.2%)	0 (0%)	3 (5.5%)
Trade credit	9 (10.4%)	7 (9.7%)	9 (10.6%)	10 (18.2%)
Microfinance	5 (5.7%)	8 (11.1%)	0 (0%)	14 (25.5%)
Equity	0 (0%)	5 (6.9%)	1 (1.2%)	5 (9.1%)
SACCOs	2 (2.3%)	10 (13.9%)	7 (8.2%)	6 (10.9%)
Govt. credit schemes	6 (6.8%)	17 (23.6%)	5 (5.9%)	10 (18.2%)
Total	88 (100%)	72 (100% )	85 (100% )	55 (100%)

Source: Author's Survey (2011)

The bureaucratic delays and administrative procedures in the credit decision-making associated with government financing are key important factors that frustrate SMEs from seeking external bank debt. The delays in the approval processes and loan disbursements are a burden which often force fish SMEs to opt for loans in informal sector even at relatively higher interest rates. For these reasons, most fish SMEs prioritise the speed of accessing external debt as more important factor than cost of capital.

#### **5.4.5.2 Working Capital Financing**

Table 5.9 shows working capital financing sources in Uganda and The Gambia with financing skewed away from informal personal and family financing sources to more formal external financing. Informal financing declined from 72.7% at start-up to 44.2% at working capital financing in Uganda and 74.1% informal financing sources to 33.8% in The

Gambia. Formal financing became prominent at working capital financing associated with more visibility, track record and accumulation of collateralised assets.

**Table 5.9: Working Capital Financing Sources of Fish SMEs**

	<b>Uganda</b>		<b>The Gambia</b>	
	<b>Small Enterprises</b>	<b>Medium Enterprises</b>	<b>Small Enterprises</b>	<b>Medium Enterprises</b>
Personal	38 (44.2%)	0 (0.0%)	28 (32.6%)	0 (0.0%)
Family	0 (0.0%)	0 (0.0%)	1 (1.2%)	0 (0.0%)
Bank	0 (0.0%)	18 (24.3%)	0 (0.0%)	8 (18.2%)
Trade credit	4 (4.6%)	15 (20.3%)	9 (10.5%)	10 (22.7%)
Microfinance	7 (8.1%)	20 (27%)	3 (3.5%)	12 (27.3%)
Internal funds	13 (15.1%)	7 (9.5%)	39 (45.3%)	2 (4.5%)
SACCOs	21 (24.4%)	9 (12.2%)	2 (2.3%)	6 (13.6%)
Govt. credit schemes	3 (3.5%)	5 (6.7%)	4 (4.6%)	6 (13.6%)
Total	86 (100%)	74 (100% )	86 (100% )	44 (100%)

Source: Author's Survey (2011)

Table 5.9 shows changing fish SME financing from the earlier start-up financing. Government financing has reduced from 23.6% at start-up to just 6.7% among medium enterprises in Uganda. This suggests that more of government fish SME financing target enterprises at start-up in both countries.

It is interesting to note that government financing decline for working capital financing from 5.9% and 18.2% for small and medium enterprises respectively at start-up to 4.6% (small enterprises) and 13.6% (medium enterprises) at working capital financing in The Gambia. However, external financing is still a problem in the fisheries industry of the two countries with many small enterprises opting for retained earnings, trade credit including pre-financing and informal credits due many to difficulties of accessing formal financial

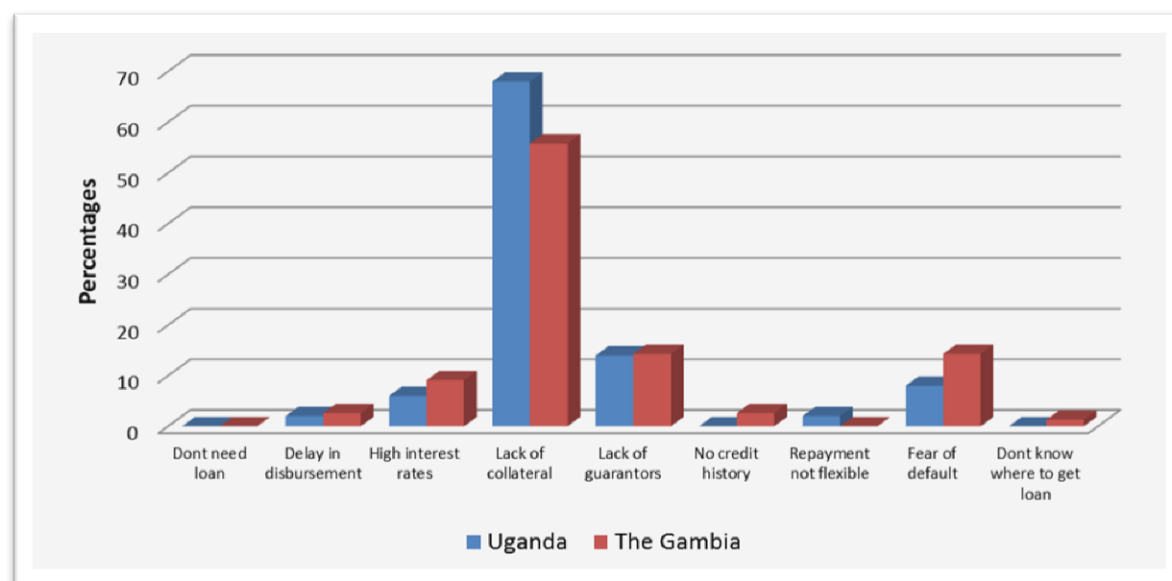
credits (Djankov et al. 2007, Bigsten et al. 2003, Chittenden et al. 1996). The findings show that external financing is bias against smaller and younger enterprises with larger and older firms being prominent in bank and microfinance lending as corroborated in SME financing literature (Rocca et al. 2009; Michaelas et al. 1999; Beck, 2006; Fafchamps et al. 1995; Daniel 1994; Bigsten et al. 2003).

The implications are that fish SMEs and SMEs in general, face formal financing difficulties across the developing world despite their importance to the economy. With the industry' significance to the Ugandan and Gambian economies, greater public sector support is required to enhance enterprise capabilities and ease their financial access to productive resources. Through industry support, some micro and small firms are encouraged to merge, form clusters and collaborate closely to overcome difficulties associated with operating tiny firms. With microfinance institutions and commercial banks having more sustainable financing models, adopting strategic and innovative lending technologies to overcome the challenges of weak business environment, poor physical and financial infrastructure can be instrumental in financing industry growth and development

#### **5.4.6 Constraints in Financial Access**

Figure 5.10 shows financing constraints of fish SMEs in Uganda and The Gambia. From the sample of 160 respondents in Uganda and 130 in The Gambia, 31.25% and 59.2% respectively reported access to formal financial credit difficulties. It is noted that financing constraints existed only among small fish enterprises as all medium enterprises had one form of external financing or the other.

Figure 5.10 shows constraints in accessing external finance, prominent among the obstacles are lack of collateral, lack of guarantors, fear of loan default and high loan interest. The fish enterprises that reported financing constraints in Uganda, 68% is associated with collateral constraint followed by 14% lack of guarantors and 8% fear of default.



**Figure 5.10: Constraints in Financial Access, Uganda, The Gambia, 2010**

Source: Author's Survey (2011)

In The Gambia, lack of collateral also constitutes the highest at 55.8% followed by lack of guarantors (14.3%), fear of default (14.28%) and high interest charges (9.1%). Uganda shows high level of collateral constraints than The Gambia but the reverse is true for high interest rates, fear of default, no credit history and lack of guarantors. Key constraints in lending to fish SMEs is the rigid long process of appraising loan applications<sup>67</sup> causing serious disruptions in project planning. Government credit schemes in The Gambia have been problematic in targeting fish SMEs. The funds end up in the hands of enterprises in

<sup>67</sup> Microfinance experts (Hulme & Mosley, 1998; Chan, 2012; CGAP 2008) argue that interest rates do not matter much credit financing relative to the timing of credit delivery. The returns on investment project may be lost if financing is delayed.



other industries and to foreigners from neighbouring countries with the greater danger of default. Financing from banks require collateral cover and other hard information requirements. These constrained fish SMEs' access to formal credit requiring public policy support and other innovative strategies that can extend credit to this vital industry in the face of acute business environment and financial infrastructural problems.

#### **5.4.7 Financial Access, Export Incidence and Technological Capabilities: Statistical Analysis**

This section attempts to establish analytically the relationship between access to finance, export incidence and research and development incidence (RDI) with host of independent variables. First, we examine with relationship between financial access and size with enterprise age as control variable. Second, we examine the relationship and statistical significance between enterprise age, size and financial access on export incidence of fish enterprises in the two countries. Third, we examine the relationship and statistical significance between RDI and independent variables of fish enterprise size, age and financial access in Uganda. This could not be carried on The Gambia due to R&D's low incidence in the sample.

##### **5.4.7.1 Financial Access**

In this section, we examine the relationship between financial access and enterprise size with Age as control variable. The model fit (LR-stats) for the Logit estimation was positive and significant at 1% in both countries. The relationship between enterprise size and access to finance was also positive and significant at 1% as shown in Table 5.10 which suggests that size is relevant in accessing formal external finance in both countries. The results show that the larger the enterprise, the greater the probability of accessing formal external

finance. Despite government credit schemes in providing special assistance to fish SMEs, small-size enterprises continue to face constraints in accessing external financial debt.

**Table 5.10: Financial Access, Uganda, the Gambia, 2010**

	Uganda			The Gambia		
	Coefficient	Standard Error	Z	Coefficient	Std Error	Z
Constant	-2.1619***	0.127	-3.9694	-3.3204***	0.7163	-6.0315
Size_EM	0.1605***	0.084	5.2192	0.3680***	0.0724	5.0808
Age	0.0245	0.047	0.4659	0.005**	0.045	1.995
LR- Statistics	58.8744***			104.7899***		
N	160			130		

Source: Author's Survey 2011. Note \*\*\* and \* refer to statistical significance at 1% and 5%

Note:  $\text{FinAccess} = C + \beta_1 \text{Size\_EM} + \beta_2 \text{Age} + \mu$

Enterprise Age also reported a positive but insignificant relationship with financial access in Uganda suggesting that enterprise finance grows with age, in line with the literature (see Rocca et al. 2011; Michaelas et al. 1999; Berger & Udell, 1998, 2006). However, enterprise Age has positive and statistically significant relationship with financial access in The Gambia as shown in Table 5.10 suggesting enterprise age like size, matters in accessing formal financial credit. H1 is accepted in both countries as younger fish enterprises face higher financing constraints than older fish enterprises.

With enterprise size positively and significantly correlated with external financial access in both countries, suggest that small fish enterprises face higher financing constraints more than large fish enterprises in line with enterprise finance literature (see Berger & Udell 1998; Beck et al. 2006; Rocca et al. 2011; Michaelas et al. 1999).

H2 = Accepted as size matters in both Uganda and The Gambia in financial access.

#### 5.4.7.2 Export Incidence

The model fit of logit regression shows export incidence and financial access statistically positive and significant in both countries as shown in Table 5.11, suggesting access to formal finance matters in participating in export market. Fish being perishable agricultural commodity requires greater financing possibilities to maintain fish quality, meet sanitary conditions, acquire equipments and plants at factory level which may be difficult for small and very young enterprises to meet. In Table 5.11, enterprise age and size also reported positive and statistically significant relationship to export incidence in both countries. This suggests that smaller and younger fish enterprises unable to participate in export market, sell their catches to local markets and larger processing and exporting enterprises to supplement their export tonnage target for overseas markets. H4 is accepted in both countries as Financial Access is statistically positive and significantly correlated with Export Incidence.

**Table 5.11: Export Incidence, Uganda, The Gambia, 2010**

	Uganda			The Gambia		
	Coefficient	Standard Error	Z	Coefficient	Standard Error	Z
C	-3.271***	0.8886	-5.2318	-1.3740***	0.3688	-4.2734
Age	0.0127*	0.0069	1.8363	0.027***	0.0044	4.3890
Size_EM	0.1808***	0.0365	4.9586	0.088**	0.0354	2.4284
FinAccess	0.1897***	0.0676	2.8053	0.1897**	0.7643	2.2174
LR Statistics	102.7815***			29.8948***		
N	160			130		

Source: Author's survey (2011). Note \*\*\*, \*\* and \* refer to statistical significance at 1%, 5%, 10%

Note:  $XI = C + \beta_1 \text{Size\_EM} + \beta_2 \text{Age} + \beta_3 \text{FinAccess} + \mu$

In The Gambia, enterprise size and age are both positively and significantly correlated with Export Incidence (EI) suggesting larger and older fish enterprises are likely to participate in export market than smaller and younger fish enterprises. The Gambia's fisheries sector is dominated by artisanal fisheries with low industrial fisheries coupled with the lacking vital public sector support to participate in the export market.

#### **5.4.7.3 Technological Capabilities**

The model fit (LR--Statistics) in the Logit estimation carried out between fish enterprise size and R&D incidence is statistically positive and significant at 10% in Uganda, suggesting that larger enterprises undertake R&D than smaller enterprises (see Schumpeter, 1934 and Lall, 1992). This is contrary to Audretsch's (2002) observation that small firms can be dynamic in undertaking R&D particularly in subcontracting relations. However, this is possible in emerging and advanced economies where small firms build required specialise capabilities. This is highly unlikely in weak LDCs where fish SMEs face considerable bottlenecks from the business environment constraints, financing issues, human skills, low domestic capabilities and other support requirements vital to their operations. Enterprise age is also positive but insignificant with RDI suggesting that age matters in R&D participation. Firms need many years to build the skills, capabilities and connectivity to undertake R&D.

Table 5.12 shows that financial access also matters in participating in R&D, showing a positive and significant relationship at 10% significant level. This is in line with the huge financing requirements in R&D in terms of plant layout, meeting sanitary conditions, hygiene fish handling, hiring skilled personnel and equipments needed to meet high value overseas demand.

**Table 5.12: R&D Incidence, Uganda, 2010**

	<b>Coefficient</b>	<b>Std Error</b>	<b>Z</b>
C	-3.861***	1.2812	-5.4044
LnEM	0.478*	0.094	1.612
Age	0.124	0.082	1.132
FinAccess	0.489*	0.662	1.630
LR- (statistics)	68.814***		
N	160		

Source: Author's survey (2011). Note \*\*\* and \* refers to statistical significance at 1% and 10%

Note:  $RDI = C + \beta_1 LnEM + \beta_2 Age + \beta_3 FinAccess + \mu$

The Table 5.12 shows that size and financial access matter in undertaking R&D. We therefore, accept H4 as size has a positive and statistically significant relationship with RDI. H4= Accepted

### **5. 5 Respondents Rating Business Infrastructure**

This section rates business infrastructure by fish SME respondents in both countries. As shown in Table 5.1 and Figures 5.1 and 5.2, the business and financial infrastructure affect enterprise operations, their growth and development and by extension, their contributions to the economies.

Table 5.13 shows a weak rating by respondents of key infrastructural factors including power, transport, public health, government agencies support and access to credit with acute constraints in the general business environment affecting fish SME financing and performance. Power (electricity) problems, transport, lack of access to credit and other constraining factors are key obstacles of fish SMEs in Uganda and The Gambia as shown in Table 5.13. This has been corroborated by earlier studies of Gelb et al. (2007) and the World Economic Forum (2011) on the Global Competitiveness Report, 2012.

**Table 5.13: Respondents Rating Business Infrastructure, 2010**

Details	Uganda					The Gambia				
	1	2	3	4	5	1	2	3	4	5
Transport	56	73	25	6	1	12	59	46	12	1
Power	60	74	22	4	0	61	49	10	10	0
Water Supply	13	61	67	17	5	7	35	60	28	0
Telecommunication	17	68	57	17	2	7	46	55	19	3
Public Health Facility	28	91	37	4	0	11	57	57	4	0
Coordination with Govt	34	72	43	10	0	41	56	27	6	0
Access to capital/credit	44	46	57	13	0	65	44	14	7	0
Business Development Services (BDS) support	41	60	46	13	0	65	28	31	6	0

Source: Author's survey (2011)

Note: (1 is worst, 2 Worse, 3 Satisfactory, 4 Good and 5 Excellent)

From Table 5.13, the survey response ranked variables of business infrastructure according to their severity in Uganda with power topping the list following by transport, access to credit, BDS support, transport, government coordination and public health as shown in Table 5.14.

**Table 5.14: Respondents' Rating Operational Constraints, 2010**

	Constraints to Fish SME Operations	Score- Uganda	Constraints to Fish SME Operations	Score- The Gambia
1	Power	2.5875	Power supply	2.6415
2	Transport	2.4938	Access to Credit	2.5070
3	Access to Credit/Capital	2.2438	BDS- Technical training	2.2805
4	BDS	2.2000	Coordination with govt*	2.2186
5	Telecoms	2.1875	Telecoms	1.8256
6	Water	2.1625	Water Supply	1.7168
7	Coordination with Govt*	2.1062	Transport	1.6455
8	Public health	1.7875	Public health	1.5581

Source: Author's survey (2011), Single mean levels significant at 1%

Note: (1 is worst, 2 Worse, 3 Satisfactory, 4 Good and 5 Excellent)

- Govt meaning Government

Table 5.14 shows poor rating by fish industry respondents of key infrastructural factors. Power, access to credit, BDS support, transport, government agencies' support and telecommunications manifest acute constraints in the general business environment affecting fish SME financing and operations in The Gambia. Fish enterprises reported power and access to credit as the most severe constraint in The Gambia, followed by business development services (BDS) support, government coordination, telecommunication, clean water supply, transport and public health. These constraints limit fish SMEs' external financing by extension their economic performance and contributions to the economy. This is corroborated by the findings of Gelb et al. (2007) as shown in Table 5.1 and Figures 5.1 and 5.2.

## **5.6 Summary**

This chapter links the theoretical issues with the findings of this study and presentation of this chapter spanned four aspects. Firstly, it has revealed that in line with the asymmetric information theory, external financiers' lack of information on fish enterprise operations and income streams constraining their access to external finance. As a result, credit is rationed, limited or denied all together to avoid incidence of non-performing loans.

Secondly, life cycle financing shows that larger and older fish enterprises having built the required reputation; accumulate assets and track record stand to benefit greater access to finance than smaller and younger fish enterprises. This is particularly prominent in LDCs where business environments, protection of creditor rights, physical and financial infrastructure are serious challenges. Thirdly, supply-side challenges are major impediments in promoting fish SMEs' access to resources ranging from public policies, physical and financial infrastructure, capacity and institutional developments. Addressing

these issues will go a long way in easing fish SMEs access to external finance, thus enhance their growth and contributions in the economy.

Fourthly, as a consequence of acute financing constraints and in line with the demand –side theory, many fish SMEs opt for less sensitive financing sources by conveniently accessing trade credit (see Fafchamps et al. 1994, 1995; Bigsten et al. 2003; Djankov et al. 2007; Mead & Liedholm, 1998), leasing of equipments and value chain financing through overseas importers and large enterprises in pre-financing arrangements. This played a crucial role in facilitating fish SMEs access to resources including finance. The supply of equipments such as mesh gears, cooler trucks, trainings in product development and acquiring technical skills are crucial for fish firms’ visibility, growth and development. However, trade credit may not be adequate requiring the banking sector to adopt innovative lending methodologies to finance this vital sector in the presence of serious challenges.

The chapter examines the financial environment and technological capabilities of fish SMEs in the two countries and their participation in the export market. At enterprise level, it assesses the sources and constraints of financial access faced by fish SMEs. The study also examines fish enterprises financial access, exports performance and technological capabilities with other mediating variables of age and size. The results show age and size matter in fish SMEs economic performance. RDI shows positive and statistically significant correlation with size, suggesting larger enterprises are more likely to undertake R&D than smaller enterprises in Uganda in line with Schumpeterian argument.



This study offered new insights pertaining to the role of enterprise financing on the development of the fishing industry, particularly in developing countries. The literature on enterprise financing has focused largely on manufacturing industry and in developing countries concerns enterprises in clustering industry. Managing the fishing industry particularly in developing countries is not easy given the enormous financing, technical, institutional, regulatory and social challenges. It is important to recognise that fish is a perishable commodity and requires considerable investments and trained personnel in maintaining, among others, strict hygiene and phytosanitary standards to ensure exports to external markets. Accordingly, access to financing is crucial to promote this industry both to enhance the export sector as well as to increase domestic consumption. The study has stressed, among other, that young SMEs require special support to overcome the market imperfections that hinder them from accessing financing from external sources. Finance alone does not guarantee success in this industry. The study has underscored the importance of developing firm-level and national technological capabilities to enhance the productivity of this sector as well as to expand exports. In short, development of any industry requires the adoption of a holistic and integrated approach underpinned by sustained efforts of all the relevant parties.

Use is made of chi-square to test for significant difference in fish SMEs relative performance in the two countries based on financial access, R&D incidence, export incidence, BDS support and Inter-firm strategic alliance. This led us to the next chapter on comparative analysis of fish SMEs' performance in the two countries of Uganda and The Gambia to assess the developments of the industry.

## **CHAPTER 6**

### **COMPARATIVE ANALYSIS OF FISH SMEs PERFORMANCE**

#### **6.1 Introduction**

The previous chapter five dealt with a detail empirical examination of fish enterprises access to formal finance in Uganda and The Gambia using Logit regression on Eviews Version 7. Use was also made of secondary data to assess fish enterprises' financing sources and constraints in the two countries. The empirical results indeed show enterprise size matters in financial access, export and R&D incidences, manifesting positive and statistically significant relationship. Financial access also matters in export and R&D incidences as shown in Tables 5.11 and to 5.12. Financial access is also found to be positively correlated with fish enterprise age in both countries confirming the works of Rocca et al. (2011); Beck et al. (2006); Berger & Udell (1998, 2006). Many small fish enterprises with difficulties in accessing formal credit opt for informal finance and trade credit through linkages with processing and exporting firms while others seek pre-financing support from overseas importers.

In this Chapter, we attempt to address the research question four by carrying out a comparative analysis to assess the performance of fish SMEs relative to financial access, export incidence, RDI, fish SME and BDS supports in Uganda and The Gambia. We employ methodology in Section 6.2 using chi-square tests to assess the relative fish SME performance in the two countries.

There have been consensus among development economists, such as Becks et al. (2003); Ayyagari et al. (2005); Demirguc-kunt (2007); Levine (1997) and Hussein & Demetriades (1996) that financial sector deepening, diversification and institutional development relaxes financing constraints on enterprises. These are essential ingredients as they make credit available to fish SMEs, thus enhance their economic performance and growth opportunities. Fish SMEs lack of access to formal external debt is identified among key factors that retard their economic growth (see Storey, 1994; Flessig, 1996; Demirguc-kunt & Levine, 2008). The high presence of small artisanal and young fish enterprises lacking capabilities and weak developed institutions tend to constrain their access to formal external financing. As Lall (1992, 2005) argued, capabilities at firm and national level matter in participating and competing in global export market. This coupled with levels of R&D sophistication shows the different performance outcomes in the two countries as highlighted in the literature.

In the next Section, we present the methodology adopted in this Chapter. Section three assesses the performance of fish SMEs' relative access to external finance, export incidence, R&D participation, fish SME strategic alliance and BDS supports in Uganda and The Gambia. Section four presents the summary of findings.

## **6.2 Methodology**

We use the two country survey data to conduct comparative analysis on levels of financial access, Export incidence; R&D participation, SME and BDS support. The sample of fish SMEs in The Gambia and Uganda are pooled together to conduct comparative analysis using Chi-Square test. The survey is drawn base on random sampling as mentioned in Section 5.3 since there is no comprehensive data on the population of fish enterprises in Uganda and The Gambia.

### **6.2.1 Specification of Variables**

The main focus of this section is to assess the levels of SMEs' access to finance, RDI, export incidence, SME inter-firm alliance and BDS support in the two countries. Data on the following variables were collected and used for analysis in the equations.

#### **6.2.1.1 Enterprise –level Variables**

The variables used in the analysis include financial access, XI, RDI, SME inter-firm alliance and BDS.

#### **6.2.1.2 Access to Finance**

Financial access in the two countries is tested using chi-square test to examine the relative strength and significance between the two countries.

Then, Financial Access (FinAccess) was estimated as:

FinAccess Approved = 1,      FA Rejected = 0

#### **6.2.1.3 Technological Capabilities**

R&D Incidence (RDI) is used as a dummy measured as:

RDI = 1 (Yes) if fish enterprises participate in R&D

RDI = 0 (No) if fish enterprises do not participate R&D

Fish SMEs' access to formal finance does facilitate their economic performance as highlighted in the literature in Chapter 2. Their performance is further enhanced with R&D participation to reach out and compete in global markets with improved fish products. Technological capabilities as detailed in the literature enhance fish enterprises to meet

sanitary export requirements, add value and enable enterprises to sustain increase production, exports and employment.

#### **6.2.1.4 Export Incidence**

$XI = 1$  (Yes) if fish enterprises participate in export market

$XI = 0$  (No) if fish enterprises do not participate in export market

#### **6.2.2 Statistical Analysis**

The section introduced methodologies and data to identify fish SMEs' technological capabilities and economic performance in the two countries. We conducted correlation analysis to test for co-linearity and level of significance among variables. Chi-square tests are also conducted to show if there is any statistical difference between the two countries performance vis-à-vis financial access, exports and R&D. The null hypothesis ( $H_0$ ) states that there is no difference between the two countries performance. Tests on various performance indicators are conducted to accept or reject null hypothesis. The subsequent analysis will focus on the relative performance of the sampled fish SMEs.

First, we examine the relative levels of SMEs' access to finance in the two countries. The second exercise examines the relative R&D and export incidences of fish SMEs in Uganda and The Gambia. The test is extended to SME, inter-firm alliance and BDS supports in the two countries.

## 6.3 Findings

This section compares statistically the relative levels of fish SMEs in Uganda and The Gambia in terms of their access to external financial credit; export Incidence, RDI, SME inter-firm alliance and BDS support as shown in Tables 6.2. We first conduct levels of correlation among variables relevant in this Chapter.

### 6.3.1 Correlation of Variables

In this section, correlations of variables in the two countries' fisheries industries examine the level of relationships among variables. The variables in the two countries are plotted together to assess the levels of correlations and statistical significance. The results show less statistical relations among the variables making the subsequent test appropriate.

**Table 6.1 Correlation of Variables**

		Age	FinAccess	RDI	Size_EM	XI
Age	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	290				
FinAccess	Pearson Correlation	0.0535*	1			
	Sig. (2-tailed)	.0564				
	N	290	290			
RDI	Pearson Correlation	0.2107	0.5071	1		
	Sig. (2-tailed)	.170	0.217			
	N	290	290	290		
Size_EM	Pearson Correlation	0.0804	0.5083	0.5822	1	
	Sig. (2-tailed)	0.1602	0.123	0.127		
	N	290	290	290	290	
XI	Pearson Correlation	0.0502*	0.4298	0.4668	0.5326	1
	Sig. (2-tailed)	0.05080	0.1070	0.3260	0.1720	
	N	290	290	290	290	290

Source: Survey data, (2011), \* correlation is significant at the 10% level.

### 6.3.2 Chi-Square Test

Chi-square or  $\chi^2$  test is a statistical hypothesis test commonly used to compare two or more observed data to investigate whether they are different from one another based on a specific hypothesis. With the deviations (differences between observed and expected), one can conclude that something other than chance is at work, causing the observed to differ from the expected. The chi-square test is always testing what scientists call the null hypothesis, which states that there is no significant difference between the expected and observed result.

This section presents the statistical chi-square test using the two-country data to assess differences in performance with regards to financial access, export and R&D incidences. As shown in Table 6.2, the differences between fish SMEs performance in the two countries show statistically significant differences, meaning null hypothesis is rejected. The results suggest that there are differences in fisheries industry performance between Uganda and The Gambia.

The results in Table 6.2 shows strong evidence of statistically significant differences in the two countries industrial performance vis-à-vis financial access, export incidence, R&D incidence, SME support, BDS support and Inter-firm Strategic Alliance associated with greater developments in Uganda's fisheries industry as detailed in Chapters three and four. The developmental role of the Ugandan government coupled with dominant industrial fisheries, network cohesion and connectivity in global markets enhance fish production, exports and livelihood support to many people in fishing communities relative to low

response of authorities in The Gambia to transform the industry as a major player in the economy. Below is the chi-square result on key performance variables.

**Table 6.2: Chi-Square Tests- Financial Access, Export and R&D Incidences**

		Country		
		The Gambia	Uganda	Total
<b>FinAccess</b>	No	74	54	128
	Yes	56	106	162
	Total	130	160	290
	Chi-Square 15.621***			
	*** p-value < 0.0001			
<b>XI</b>	No	106	100	206
	Yes	24	60	84
	Total	130	160	290
	Chi-Square 12.635***			
	*** p-value < 0.0001			
<b>RDI</b>	No	127	52	180
	Yes	3	108	110
	Total	130	160	290
	Chi-Square 129.026***			
	*** p-value < 0.0001			
<b>SMES</b>				
	Chi-Square 42.903***			
	*** p-value < 0.0001			
<b>BDS</b>				
	Chi-Square 58.288***			
	*** p-value < 0.0001			
<b>SA</b>				
	Chi-Square 3.518***			
	*** p-value < 0.0001			

Source: Computed from Author's Survey (2011) data using SPSS Version 21.

Note: Chi-Square Test; \*\*\* refers to statistical significance of 1%

### 6.3.2.1 Financial Access

In this section, we conduct an independent t-test to examine whether there is a significant relative difference between fish SMEs access to finance in Uganda and The Gambia. We used chi-square statistics to test for differences and levels of significance. The result shows significant p-value of (0.000) below the p-value cut-off point of 0.001 as shown in Table



6.2. Therefore, the p-value independent t-test shows a significant difference between Uganda and The Gambia in terms of fish SMEs financial access.

The test revealed a very strong evidence of statistically significant difference between fish SMEs in Uganda and The Gambia in access to finance at 1% (Chi-square 15.621,  $df=1$ ,  $p\text{-values}=0.000 < 0.01$ ). The difference between the two countries access to finance is statistically significant, suggesting null hypothesis rejected.

Given the significant results, we can conclusively argue that fish SMEs in Uganda and The Gambia reported significant differences in financial access. This is associated with differences in institutional and financial developments, firm and national level capabilities, government policy support, effective network cohesion and global connectivity. The establishment of credit schemes at Bank of Uganda targeting SMEs and fish SMEs in particular, the incentives created for commercial banks to invest in the sector, emergence of leasing and hire purchase firms in the industry and connectivity in global markets resulted to flow of funds and information across the industry. These are largely absent in The Gambia with the dominant artisanal fisheries lacking basic capabilities to access and manage large formal financing.

#### **6.3.2.2 Export Incidence**

The model fit chi-square statistics is used to test the relative Export Incidence (EI) of fish SMEs in Uganda and The Gambia. The model tests empirically test relative differences in the two countries export market participation. The test shows significant p-value at 1%. The p-value independent t-test reported a significant difference between Uganda and The Gambia in terms of Export Incidence. The test revealed a very strong evidence of statistically significant difference between fish SMEs in Uganda and The Gambia in export

incidence at 1% (Chi-square 12.635,  $df = 1$ ,  $p\text{-values} = 0.000 < 0.01$ ) as shown in Table 6.2. Therefore, the null hypothesis is rejected.

The difference in export incidence between Uganda and The Gambia is significant at 1%, meaning there is a strong evidence of significant difference between the two countries. This is reflective of Uganda's strong fisheries industry and joint collaboration in addressing collective action problems, skills training, effective linkages and increasing exports to lucrative markets. The joint collaboration in Uganda fisheries industry enables the country to regain export licenses to EU after the fish export crisis in 1997 – 2000. Fish production and exports boosted from 2000 through to 2006 after the industry upgraded its plant layout, landing sites, handling systems, technologies and an overall compliance with SPS and HACCP requirements. .

Due to the dominance of artisanal fisheries with low industrial fisheries in The Gambia, exports reached its highest at just USD5.9 million in 2010 explained by inability to meet overseas quality and sanitary conditionalities.

### **6.3.2.3 Research and Development Incidence**

The model fit chi-square statistics is used to test for differences in R&D participation of fish SMEs in Uganda and The Gambia. The model tests empirically the relative differences in performance vis-à-vis R&D. The test revealed a very strong evidence of statistically significant difference between fish SMEs in Uganda and The Gambia in R&D incidence at 1% (Chi-square 29.026,  $df = 1$ ,  $p\text{-values} = 0.000 < 0.01$ ) as shown in Table 6.2. The test result show significant p-value of 1% ( $p = 0.000 < 0.01$ ), meaning a statistically significant difference between Uganda and The Gambia in terms of R&D Incidence. The null

hypothesis is rejected with statistically significant difference in R&D participation in the two countries.

The significant difference in RDI between fish SMEs in Uganda and The Gambia as shown in Table 6.2 is associated with high export capabilities, network cohesion and vital public sector policy support in Uganda relative to The Gambia. Uganda has a higher level of institutional development as detailed in Chapter four with Makerere and Mbale Universities providing specialised fish technology training, equipped with fish quality testing laboratories, right legal reforms in the industry, appropriate sector policies, among others, helped transform the fish industry from low key local industrial activities to a strong international market participant. The lack of similar developments in The Gambia denies the country to undertake R&D and enhance its participation and competitiveness in global fish markets.

#### **6.3.2.4 SME Support**

The relative SME support and inter-firm alliances show significant differences between Uganda and The Gambia. Using chi-square tests, the study assesses the differences in fish SMEs support in the two countries. The test shows a very strong evidence of a significance between Uganda and The Gambia in SME support (chi-square 42.903, df =3, p-value 0.000 <0.001). The difference is significant at 1% as shown in Table 6.2, thus null hypothesis is rejected. With Uganda fish SMEs better supported and stronger network cohesion among fish enterprises are quite different with those in The Gambia as they lack the necessary support and linkages. Unlike Uganda, there is no formal fish industry association in The Gambia to dialogue with government on issues relevant to the growth and development of

the fisheries sector. In the absence of a network body, coordination of joint activities and policy dialogue tend to suffer, adversely affecting information flow and industry growth. With the Uganda Fish Processors and Exporters Association (UFPEA), industry players can speak in one voice and successfully dialogue with the authorities on issues affecting the industry.

#### **6.3.2.5 Business Development Support**

From Figure 6.2, Business Development Services (BDS) support also shows statistically significant difference of fish SMEs in the two countries. There is strong evidence of a significant difference between Uganda and The Gambia in BDS support (chi-square-38.288,  $df = 3$ ,  $p\text{-value } 0.000 < 0.001$ ). This is contrary to the null hypothesis that suggests no difference in BDS support to fish SMEs in the two countries, thus rejected. Addressing fish export crisis saw many training institutions emerging in the industry in Uganda including the Fisheries Training Institute, Fisheries Research Institute, Makerere and Mbale Universities among others, providing relevant technical support to fish SMEs' institutional and human resource capacity building. Overall, fish SMEs' institutional developments in Uganda become enhanced much higher than those in The Gambia manifested in their fish production, exports and broader access to finance. The differences in public sector policy support brought about contrasting outcomes in the two countries' fish industry performance.

This is corroborated by earlier analysis in Chapter three with higher fish production and export capabilities in Uganda than in The Gambia. The joint response from key stakeholders (government of Uganda, international development partners, private sector industry association, financial institutions, overseas importers and knowledge

infrastructure) to address the fish export crisis in Uganda culminated into addressing collective action problems in the industry. This enabled the industry to export fish to sophisticated global markets where stringent sanitary and fish quality standards matter to a greater extent. The Gambia with no similar training programs offered by its only University relies on training support in the sub-regional countries and local training workshops. The human resource capacity building is limited to transform the industry into global competitiveness.

#### **6.3.2.6 Inter-firm Strategic Alliance**

Inter-firm Strategic Alliance as shown in Table 6.2 also shows strong evidence of statistically significant difference between the two countries (chi-square = 3.518, df = 3, p-value  $0.000 < 0.001$ ), thus the null hypothesis is rejected. The fish export crisis in Uganda has significantly transformed the industry into a complex and deepening business activity with considerable interactions with vertical and horizontal linkages both locally and overseas. This makes productive resources available to the industry, enhance capabilities and promote growth of actors in the industry. Through trade credit, leasing of fish gears, pre-financing schemes, investments in cooler trucks and equity by overseas importers and large fish enterprises enable many fish SMEs access to resources and increase their fish production. The UFPEA provided the necessary network cohesion in addressing industry concerns and promote growth.

With no crisis in The Gambia, it lacks the similar monumental pressure to address industry constraints. Linkages are weak to support industry growth and no industry association to

dialogue with the authorities on the concerns of the sector. This has undoubtedly limited the availability of productive resources and capabilities of fish SMEs. The industry in The Gambia is not as complex as Uganda with limited emerging firms to deal in downstream fish products. As a result, fish and fish products are exported with minimal processing with large portion being smoked, salted and dried fish which do not fetch much value as fresh chilled fish. The policy support is also inadequate in forming clusters; protect water fish resources and promoting linkages to push the industry forward.

#### **6.4 Summary**

This chapter established that financial, institutional and technological developments matter in enhancing access to productive resources and promote exports to external markets. This has enabled Ugandan fish industry increase fish production, add value and export to lucrative and competitive markets overseas relative to The Gambia where infrastructure is less developed. Secondly, the role of a developmental State is highly manifested in Uganda where the government played a lead role in coordinating efforts, collaborating with key stakeholders and putting the necessary pressure on industry players to meet EU sanitary requirements. The lack of any monumental pressure to trigger learning, adapting and upgrading technologies in The Gambia, made positive changes in the industry too slow to respond to overseas market demands.

This Chapter undertakes a comparative analysis of fish SMEs' performance in Uganda and The Gambia. Using chi-square statistical test shows strong evidence of significant difference in financial access, export incidence, RDI, SME support, BDS support and Inter-

firm Strategic Alliance in Uganda and The Gambia. This is associated with enhanced public sector policy support, greater meso-organisational support, collaborative effort, extensive network cohesion, broader financial and institutional developments in Uganda relative to The Gambia that enabled former regained fish exports licence to increase fish exports to lucrative markets overseas.

The Export Incidence as shown in Table 6.2 reported significant difference in the two countries associated with greater and vibrant fish export market in Uganda than The Gambia. The industry in Uganda is deepened and better developed with more fish industrial firms and enterprises emerging to deal in different downstream products relative to the dominant artisanal fisheries with weak capabilities in The Gambia. In contrast, Uganda had strong industrial fisheries and effective vertical and horizontal linkages with artisanal fisheries, suppliers, customers and overseas trading partners resulting to industry deepening with increase participation in the lucrative export markets of EU, USA, Middle-east and sub-regional fish trade.

## **CHAPTER 7**

### **CONCLUSIONS AND IMPLICATIONS**

#### **7.1 Introduction**

The study of fish SMEs' access to formal finance in Uganda and The Gambia and their role in the respective economies show different responses and developments. Despite the developmental role of fish SMEs, access to external finance in LDCs particularly in the two countries of Uganda and The Gambia is limited due mainly to adverse business environment, asymmetric information, weak lending infrastructure, undeveloped financial sector, among others. There is a general consensus in enterprise financing literature that SMEs face internal and external limitations in their access to financial credit. Internally, they are less creditworthy associated with weak management capacity, low institutional capacity, self-exclusion and low absorptive capacity to handle formal credit. In the external perspective, SMEs are considered by external financiers as highly insecure and costly businesses to deal with. The historical lack of collateral, financial records and other hard information requirements extensively limit fish SMEs' access to external financial credit. With significant artisanal fisheries dominant in The Gambia and a sizeable number in Uganda lacking basic capabilities, continue to severely constrain their formal financial access.

The findings show different trajectories and responses of Uganda and The Gambia to institutional and technological developments in responding to global demands of quality fish exports and competitiveness. Their performances in overseas fish exports show varying levels of reacting to strict and sophisticated international trade compliance requirements.



The Gambia shows greater weakness in fish exports explained by the weak capabilities of artisanal fisheries, poorly developed industrial fisheries, weak public policy and meso-organisational support. The failure of Ugandan fish SMEs to reach frontier phase of technological upgrading couple with the weak control of supply chains constrained the industry from expanding its crucial role in the economy and remain competitive in global fish trade. The findings support the notion that the ability of enterprises to produce in large quantities, increase exports and participate in more complex global markets requires institutional developments, effective network cohesion, connectivity in international markets, strong financial institutions, supply of the needed technological infrastructure and adequacy of meso-organisations with leading role of a developmental state as shown in Figure 4.4.

It is important to note that an improved performance of fish enterprises to export agricultural commodities in international markets require strong amount of technological capability building. The increase in production, exports and other downstream products are good for economic growth and development but these cannot be achieved under weak macro-economic, technological, financial and business environments (see Stiglitz, 1996, Lall, 1992, 2005, Rasiah, 2007). As institutions developed in size, assets and reputé, they stand to gain unrestricted access to factors of production including formal external finance.

The developments of Uganda's fisheries sector can be linked to its fisheries export crisis of 1997-2000. It was in February 1997 that salmonellae bacteria was detected in fish exports of Uganda in Spain coupled with the outbreak of cholera in December 1997 that European Union (EU) through its directive 97/296/EC imposed a ban on fish imports from Lake Victoria region affecting fish exports from Uganda, Kenya and Tanzania. This led to a

conditional ban on Uganda's most important agricultural commodity export. It led to significant economic costs in terms of loss of export revenues, jobs, tax revenue and closure of six processing factories. This triggered a joint response from key stakeholders including Ugandan government, international development partners such as UNIDO, FAO and AfDB, the network body-UFPEA, meso-organisations (universities and research centres), financial institutions, EU importers association, among others, to urgently address the fish export crisis. By October 2000, the sector regained eligibility to export to lucrative markets of EU as shown in Table 4.7. As a result, fish exports jumped from USD34.36 million in 2000 to USD79.04 million in 2001, further to USD88.81 million in 2004 to its highest at USD147.04 million in 2006. This was achieved due to improved institutional change, technological capability building, broader access to external finance, effective network cohesion and collaboration within the sector. The Development Finance Department of Bank of Uganda (The Central Bank of Uganda) managed credit lines to finance SMEs including fisheries sector and formal financial institutions were encouraged by government through incentive packages to lend to this vital sector. Similar government and donor support programs are in place in The Gambia to support fisheries sector's access to finance, provision of cold storage facilities, equipments and training of fisheries officials in food safety and management. With the decentralisation of the financial sector in both countries, microfinance institutions emerged to target niche markets in this sector.

## **7.2 Summary of Chapters**

The findings show that fish is an important economic commodity in the two countries in terms of food security, employment, export revenues, tax and rate revenues for central and local governments and high animal protein content for those dependent on it for livelihood.

The study of fish SME financing and their role in economic development in Uganda and The Gambia show interesting findings. Fish SMEs' access to formal bank credit remains a challenge due largely to information opacity of smaller and younger enterprises coupled with adverse business environment, weak institutions, supply-side and demand-side constraints and weak firm-level and national technological capabilities. The banking sector preferred financing more of public sector activities to private sector and more large businesses than smaller firms due to lending infrastructure problems, weak credit protections and the high risk profile associated with small fish SMEs.

We conclude on the findings of each chapter and by extension the research questions and objectives of this study as follows:

### **7.2.1 Introduction of the Study**

The chapter introduces the study with detailed analysis of SME financing constraints globally narrowing down to fish SMEs in the fishery industries of Uganda and The Gambia. It covers motivation of the study and the problem statement which forms the basis of this research. Despite the socio-economic and developmental role of fish SMEs, they continue to face serious constraints in accessing formal financial credit. The research questions and objectives are derived from the problem statement. The chapter ends with significance of the study and outline of subsequent chapters.

### **7.2.2 Theoretical Considerations and Literature Review**

This chapter reviews related past studies of SMEs and in particular, fish SME financing in developing countries. It shows formal financing is bias against smaller and younger fish enterprises in developing LDCs explained by host of constraining factors such as asymmetric information, supply-side, demand-side, systemic quad, institutional and

technological capabilities, business environment and protection of creditor rights. The theoretical and empirical works are reviewed to assess their robustness and identify gaps relevant to this research. The study found adoption of innovative lending technologies; leasing, hire purchasing and factoring can address collateral problems and avail productive resources including finance to fish SMEs. Developments of stock markets can provide long-term financing to this vital industry as such financial products are not offered in the banking sector. The role of a developmental state and close collaboration can address financing and other operational bottlenecks affecting fish SMEs in the two industries.

### **7.2.3 Fishery Industry and Economic Development**

Fish industry is important to many people as it constitutes a vital component of diverse and dynamic livelihood strategies. Despite its importance to the economy as mentioned earlier, supply-side constraints and systemic quad (see Figure 3.1) in the form of acute lack of formal financial access, public sector policies, physical and financial infrastructure, adverse business environment, human resource skills and weak firm and national technological capabilities have considerably limit fish production and exports in the two countries, hence the industries' contributions to the economies (see Figure 3.5 and 3.9). Monitoring and enforcement of laws to combat illegal fishing remain key challenges in the two countries.

The importance of the industry to the socio-economic development of Uganda and The Gambia is well recognised as highlighted in the previous chapters. However, its role in the two economies could have been greater had the two countries developed and strengthened the four systemic pillars (Figure 2.7), build domestic firm and national capabilities, broaden access to external financing, improved human resources skills and develop the relevant meso-organisations including knowledge infrastructure. Also, addressing supply-side

constraints and adverse business environment associated with LDCs could impact positively on fish production, boost exports and enhance the industry's participation and competitiveness in global market for fish and fish products.

#### **7.2.4 Institutional Change, Technological Capabilities and Fish Exports**

Institutional changes in the two countries' fisheries industry helped to a greater extent avail resources including finance to the industry players. Legal reforms in the form of business registration, credit protection, monitoring and enforcement of fisheries laws were strengthened. Commercial courts were established to reduce congestion in the courts and speed up loan recoveries. Mortgage registrations and foreclosures are now done with ease relative to prior fish export crisis in the case of Uganda and much improvement in The Gambia. Commercial banks have responded to incentives in SME financing including fisheries industry coupled with the emergence of leasing companies to provide important investment and debt capital support.

The credit schemes of Bank of Uganda, the decentralised financial sector and the emergence of donor projects in fishing industry helped provide the needed financing, skills training and institutional developments. The support of UNIDO in upgrading laboratories and landing sites, training fisheries officials and enhancing hygiene fish handling along the supply chain helped Ugandan fisheries industry to regain fish exports license to EU and The Gambia to expand its fish exports to different market destinations.

The study also shows that institutional and technological developments matter in fish SMEs' growth and development. Graduating from fish export crisis in Uganda, the joint response from key stakeholders build the required technologies through addressing collective action problems that regained the EU export licence. This coupled with effective

linkages resulted to industry deepening, growth and development. Access to debts, equity, technology, human resource capacity building and knowledge infrastructure were enhanced in Uganda. The Gambia lacks similar upgrading in the industry, thus denied the opportunity to exploit fish trade at global level as sophisticated fish products are demanded. This calls for leading role of public sector agencies to address weaknesses in The Gambia's fishery industry and for Uganda to scale up to frontier phase of advance fish product development, control marketing chains and greater value addition.

### **7.2.5 Fish Enterprises Financing Issues**

Fish SMEs in the two countries have access to broad range of financing sources as shown in Tables 5.8 and 5.9. In line with the literature, small fish enterprises reported higher financing constraints as shown in Figure 5.10. With the difficulties in accessing formal external finance, small fish enterprises opt for informal and semi-formal financing sources including personal, family, SACCOs, government credit schemes and trade credits to address their financing requirements. Information opacity, lack of collateral assets, hard information requirements, weaknesses in credit protection rights and other business environment problems severely limits small fish enterprises' access to external formal credit. Some fish enterprises resort to self-exclusion due to increasing difficulties of accessing formal external finance. They instead continue to rely on trade credit including supply and value chain financing from local larger firms and overseas importers as shared by Fafchamps et al. (1994, 1995).

The analytical framework shows that high transaction costs and asymmetric information (see Figures 2.4 and 5.3) between lender and borrower are the driving force explaining fish SMEs limited access to external finance in both countries. Governments have an important role to play in facilitating institutional developments and legal reforms in fostering competition and providing effective regulatory frameworks. The support of public sector agencies in expanding smaller and younger fish enterprises access to formal finance is essential for a vibrant and deepening industrial growth.

#### **7.2.6 Comparative Analysis of Fish SMEs Performance**

The comparative analysis of fish SME performance in Uganda and The Gambia is based on financial access, export and R&D incidences, SME support and Inter-firm alliances and BDS support. In these analyses, use is made of chi-square to statistically test for significant differences between fish SMEs performances in the two countries. The results show strong evidence of statistically significant differences of fish SMEs vis-à-vis the performance indicators of financial access, exports and RDI. This is explained by greater support from public sector and meso-organisations, collaborative effort, extensive network cohesion, broader financial access and greater institutional development in Uganda than The Gambia. The fish export crisis of 1997 – 2000 triggered joint efforts from public sector, international development partners, industry players, commercial banks, meso-organisations, insurance and leasing companies and overseas importers that eventually save the industry from total collapse. This enabled the industry to bounce back as a strong force in fish production and exports to lucrative markets of EU and USA. Unlike Uganda, The Gambia did not respond to such a crisis, hence the momentum to enhance knowledge infrastructure, sector policies,

extensive financial access and development of domestic artisanal capabilities remain weak to support industry growth and development.

Fisheries unlike other industries require technological capabilities, human resource skills and equipments to maintain quality of fish products throughout the supply chain to participate and compete in global export market. This explains why Uganda outperformed The Gambia in fish production and exports as the former responded urgently and massively to graduate from the export crisis through linkages and collaborations within the sector though further advancements in reaching frontier phase of product development and the control of fish products marketing chains were beyond the industry.

Accordingly, Chandra et al. (2006) and Tan (2012)<sup>68</sup> argued that countries develop key sectors of their economies through three main trajectories:

- i. Respond to crisis situation as seen in the case of Uganda
- ii. Exploit natural resource endowments for growth
- iii. Through learning, innovation and adapting, building firm and national technological capabilities to produce in large quantities and export to lucrative and complex markets. They gradually reach technological frontier phase, compete effectively in global markets through creative destruction and knowledge accumulation (Schumpeter Mark i and ii).

In Southeast Asia, Singapore is found in (ii) and (iii), having a natural resource of strategic location, they grew over time through learning, innovation, creation, accumulation and commercialisation of knowledge. Malaysia also in (ii) and (iii), having crude oil reserves as

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<sup>68</sup> Professor Tan (former Dean, Faculty of Economics and Administration, University of Malaya) in his seminar paper on September 16, 2012 on Malaysian Economic Evolution.



natural resource and through innovation and technological development, it reaches frontier phase of oil palm production, processing and exports and semi-conductors (Rasiah, 2006).

In this study, Uganda can be found more in (i) and less developed in (ii) and (iii). Through joint reaction, the Ugandan government collaborated with key stakeholders to respond to the fish export ban from EU in 1997 – 2000 to restore the lucrative export market. With this response, Uganda was able to better exploit its natural water resources by introducing technologies that exist in other countries but new to the industry. However, it is as if their task remained in regaining eligibility to export fish products to EU market as further product developments, control of supply chains and above all domestic capability developments to reach technological frontier phase remains beyond the industry. The surveillance and monitoring responsibilities of government agencies remains weak, overfishing and illegal fishing of juvenile fish became apparent undermining future fish resources. Financing of small fish enterprises remains a challenge as the momentum of mobilising resources died down soon after regaining exports to EU. Nile perch, the high-priced fish species catches declined considerably affecting export volumes and revenues as shown in Table 4.3 and Figure 4.8.

In The Gambia, similar pressures that existed in Uganda were absent as there was no crisis in the industry and the policy support failed to trigger desired changes in the sector. The same passive activity that existed in other sub-sectors such as meat, dairy, fruit, grain and bakery unlike the fish industry in Uganda were true of The Gambia's fisheries sector. Despite its marine, river and stream fish water resources, The Gambia could not build the right pillars to exploit these resources to the fullest due to supply-side constraints. Public sector policies only succeeded in considerable economic loss as fish caught in The

Gambian waters are landed in overseas ports where they are processed and exported to overseas markets as exports of those countries. This is associated with lack of dedicated port facilities for industrial fisheries in The Gambia, poorly developed industrial fisheries sector with artisanal fisheries dominating the sector lacking basic capabilities for growth. Research and development seen as wealth creation is absent in the fisheries industry with the laboratory supported by UNIDO to test fish quality prior to exports expected to commence operation in latter part of 2012. It is evident that collaboration among stakeholders is vital in responding to collective problems as experienced in Uganda.

### **7.3 Implications for Theory and Contributions of the Study**

1. Fish exports are important to the economies of the two countries and for the dynamic livelihood support of fishing communities. However, supply-side constraints as highlighted in chapter three limits the industries' contribution to the economies of the two countries (see Figure 3.1 and 3.5). The literature argues that supply-side constraints of Rogers et al. (2009), systemic pillars of Rasiah (2007) and firm level and national technological capabilities of Lall (1992) constrain most LDCs' participation and competitiveness in global trade (also see trade theory arguments in Section 2.3.5). Global trade benefit countries differently, important for those that build required technological capabilities and the losers are those that lagged behind in capability building.

Using intra-industry trade analysis, the study is able to examine industry contribution to the economies of Uganda and The Gambia compared to the less robust approach of Bene et al. (2008, 2010). This makes the study's approach more robust in fish SME importance analysis. The role of the developmental state in Uganda was able to boost fish production and exports in the face of severe supply-side constraints. Joint reaction in Uganda has

helped to address fish export crisis that eventually enhances industry's capabilities in Uganda relative to The Gambia. With proactive role of government, constraints in fish trade are addressed to a greater extent in Uganda compared to The Gambia.

2. The findings of the second research question show that institutional change and technological capabilities helped boost fish exports in Uganda by availing resources including finance to the industry as shown in chapter four. Institutional changes in the form of legal reforms, credit protection, monitoring and enforcement of laws, addressing collective action problems (such as upgrading landing sites, fish laboratories, fish industry infrastructure), establishment of commercial courts to expedite loan recoveries, decentralised financial system, among others, have helped to increase financing to the industry.

The literature argues that institutional development matters in enterprise formal financial access (Rajan & Zingales, 1998; Beck et al. 2005; Ayyagari et al. 2005; Sleuwaegen & Goedhuys, 2002). Variations across countries in enterprise performance and financing are explain by differences in legal efficiencies, effectiveness of the financial systems, adequacy of infrastructure, tax and regulatory framework, macro-economy stability and business environment.

The evidence lends support to the findings in the literature with this study providing new insights into institutional and technological developments in the two countries. With much collaboration among key stakeholders and network cohesion in the industry, institutional weaknesses particularly in Uganda have been greatly addressed. Improvements have also been recorded in The Gambia in terms of legal reforms, judicial efficiencies and recognising the importance of the industry. The support from UNIDO, AfDB, FAO and

other multilateral institutions and pressure from EU helped triggered desirable institutional and technological developments to boost fish production and exports. The provision of government credit schemes to support start-ups, incentives to banks to lend to this vital industry, upgrade landing sites and laboratories, enhance human resource skills of fisheries authorities and industry associations became crucial in fish SMEs' visibility, financial access and performance.

Much of the theoretical and empirical literature on fish importance in economic growth and development concentrated on developed and emerging economies and the global fish market leaders of Chile (salmon farming), China, Norway, Vietnam and South Africa enjoying substantial technological learning, upgrading and greater formal financial access neglecting the need for LDCs to build institutional and technological capabilities. Uganda was able to record high growth in fish production, exports, employment and reasonable amount of value addition with enhanced institutional and technological developments; the lacking of it has denied The Gambia similar experience.

This study fills the gap by examining the industry experience of two LDCs of Uganda and The Gambia, making the study a valuable contribution to development economics literature. The study examines not only financial but also technological capabilities, institutional developments, linkages and connectivity in global markets in the two countries' fishery industries which makes fish SME financing study standing out among past SME researches.

The works of Kiggundu (2005) is the only known study on technological capabilities in the fishery industry in Uganda and none in The Gambia, making this study valuable in enhancing knowledge in fisheries industry technological capability study and an important reference work.

3. Fish SMEs have broader access to finance from informal, semi-formal and formal external finance. The findings show lack of collateral, lack of guarantors, high interest rates and fear of default dominated fish SMEs' financing constraints. Some opt for trade credit along the supply and value chain financing while others resort to self-exclusion (demand-side theory) due to difficulties in accessing formal financial credit. Due to information asymmetric, younger and smaller fish enterprises report higher formal financing constraints than older and larger enterprises.

The literature on enterprise financing argues that age, size and ownership matters in enterprise financial access. The evidence supports the findings of Berger & Udell (1998, 2006); Myers, (1984); Rocca et al. (2011); Beck (2002, 2004); Michaelas et al. (1999). Due to high information asymmetric, low collateral assets, reputation and inabilities in meeting hard information requirements, enterprises access to external finance is severely constrained. Therefore, in line with pecking order, asymmetric information, supply-side and demand-side theories, smaller and younger firms tend to prefer internal sources of finance such as owners' equity, retained profits and other informal finances to fund their enterprise financing requirements. They are in a position to rebalance their financing needs as they grow older and larger, build the required reputation, acquire more collateral assets, track records and profitability. The statistical tests in both countries show a significant and positive relationship suggesting size and age matter in fish SME financing.

While not refuting the bias against younger and smaller enterprises in their access to formal finance, the trigger in Uganda after the fish export crisis brought about immense policy and financial support to fish actors in the industry. Incentives to commercial banks, establishing of cooperative credit schemes, microfinance banks, microfinance institutions, revolving funds and meso-organisations such as Universities providing capacity building support enhance financial support and efficiency in its usage. With the importance attached to fish SMEs in developing economies, their access to finance remains crucial. Hence, this thesis sought to understand their financing sources, constraints and other institutional capabilities vital for policy decisions as credit constraints restricts their economic performance, growth rates and contributions to the economy.

There has not been any rigorous study on fish SME financing in Uganda and The Gambia, making this research an important reference work and valuable to policymakers and other stakeholders in the two countries. Whatever studies that existed relied on anecdotal evidence of Robb, (2002); Beck (2006) and Berger & Udell (1998), this study has been able to confirm using more representative econometric evidence that fish SMEs access to formal finance grow with age and size. With high asymmetric information and opacity, younger fish enterprises report higher financing constraints than older enterprises, particularly in environments where financial and institutional developments are weak as in many LDCs. Yet, the evidence lends weight to support the findings of Berger & Udell (1998 and 2006), Myers (1984), Myers & Majluf (1984); Rocca et al. (2011), Michaelas et al. (1999). Fish SMEs are in a position to rebalance their financing requirements from personal, family and other informal financing sources at start-up with more of external debt at maturity after building the required reputation, collateral assets and track record. Using large sample size,

the empirical findings show age has a positive relationship in both countries. However, with the lucrative activities of the fishing industry, many formal enterprises with right skills and capacity are emerging along the supply chain to exploit potentials in the industry. At an early age with great growth potentials, they are able to forecast financial projections, build better financial records and have huge production and export potentials, thus able to access external finance.

The study of SMEs in international literature is largely on manufacturing industry and in developing countries mainly concerns enterprises in clustering businesses especially in Sub-Saharan Africa<sup>69</sup>. There is no prior study on SMEs access to formal external financing in the fishing industry of Uganda and The Gambia. Therefore, the findings are expected to be valuable to key stakeholders and future researchers.

4. Using Chi-Square test, the findings show statistically significant difference in fish SMEs access to external finance, export incidence, RDI, SMES, BDS and Strategic Alliance in Uganda and The Gambia. The joint response in Uganda to fish export crisis enabled the industry to boost fish production and exports after addressing collective action problems – finance, infrastructure (landing sites, laboratories and equipments), institutional developments and manpower skills developments, among others. Differences in initial conditions with industrial fishing dominating in Uganda and artisanal fisheries in The Gambia and in the nature of institutional change produced contrasting outcomes in the two countries as shown in Chapters three through to six.

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<sup>69</sup> (see McCormick 1999, Kiggundu 2008 on fish cluster in Uganda, Oyelaran-Oyeyinka 2001, 2004, Mytelka 2004, Adeya 2008 on Suame manufacturing cluster in Ghana, Kinyanjui 2008 on metalwork cluster in Kenya, Bolo, 2008 on cut-flower cluster in Kenya, Abiola 2008 on automotive components cluster in Nigeria, Abiola et al 2008 on furniture and handicraft clusters in Tanzania and Sawkut 2008 on textile and clothing clusters in Mauritius and South Africa)

The study examines the level of significant differences of fish SMEs performance in the two countries to accept or reject the null hypothesis. The significant difference is enhanced by institutional developments through its influence on meso-organisations (Nelson, 2008; Rasiah, 2004, 2013; North 1990). The study confirms by using more representative econometric and empirical evidence that institutional and financial developments, joint collaboration, network cohesion, connectivity and the crucial role of developmental state matter in enhancing fish SMEs' performance and significance to the economy.

The evidence supports the findings of Lall (1992, 2005) and Rasiah (2004, 2007, 2009) that economies are able to produce in large quantities, increase exports and compete in sophisticated global markets after building the required domestic firm-level and national technological capabilities<sup>70</sup>. It is noted in this study how Uganda increased its fish production and exports after graduating from the crisis in 2000 when it regained fish export licence to EU relative to low technological capabilities in The Gambia. Addressing financial and institutional constraints require a long-term solution, hence the strategic role of a developmental state helped to address these environmental, institutional and financial infrastructural problems as shown in the case of Uganda.

However, the lack of further development in technologies in Uganda limited the industry's abilities to reach frontier phase (Kiggundu, 2005, 2006) and contribute more to the economy. As Lall (1992:166) argued, 'technological capability building is the main driver

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<sup>70</sup> Rasiah (2007) argued that the four pillars of network cohesion, the environment, role of national governments and connectivity to global supply chains matter in boosting exports and to remain competitive in global markets..



of export competitiveness and growth, hence it is the path developing economies must take to achieve development''. It is against this backdrop that Lall (2001a) argued that globalisation affects economies differently; benefit those that enjoyed technologically capabilities (endowed and created) and deny others who failed to exploit the opportunities offered by global trade. This is true of most SSA economies, failing to integrate fully in global economy despite decades of trade liberalisations; they are yet to exploit global trade opportunities. This manifests highly in the two countries' fish production and exports, particularly in The Gambia lagging behind in global fish trade participation and competitiveness.

#### **7.4 Implications for Policy**

A number of policy implications can be derived from these findings. At the apex level, broad-based macroeconomic stability and reforms (see Figure 4.4) aimed at creating a more dynamic economy can be an effective way in facilitating growth in fish industry. Several studies have reported that financial and institutional developments do ease financing constraints on SMEs. The different forms of direct government controls, policy inconsistencies and adverse regulations that discriminate against fish SMEs relative to large enterprises, in terms of their access to inputs, finance and other incentives, have over the years retarded fish SMEs' unrestricted access to external finance. Eliminating such distortions can be crucial in enhancing the expansion of fish SMEs' greater access to external finance and other resources.

Despite their importance to the economy, fish SMEs face lots of problems particularly at start-up phase. As a result, the failure rates are very high in the initial three years of existence (see Storey, 1994) and the multiple needs they require to get established. Those

that did not die, many do not grow either, being survivalist-type activities or what McCormick (1999) referred to as ‘enterprises of last resort’. There is a strong need to come up with projects and programmes to support fish enterprises at this crucial stage by building on skills through technical assistance and increase their access to resources including finance. Wholesale revolving funds through recognised financial institutions can offer better resource management as government direct financing of fish SMEs has not been successful in many SSA countries.

Financial markets are imperfect due largely to information asymmetries and enforcement problems. It is difficult to remove the root causes of market imperfection in the short-run, however, institutional innovations can be introduced to mitigate some of the problems associated with financial intermediation and address the most glaring consequences of its imperfection.

Issues of adverse business environment such as securing and registering property titles, property rights protection, efficient legal systems, collateral enforcement, physical and lending infrastructure, among others, are key constraints impeding fish SMEs’ greater access to external finance. Public sector agencies need to collaboratively address these challenges urgently to enhance SMEs’ unrestricted access to formal finance.

With SMEs continuous lack of financial credit, hire purchase can be exploited particularly in movable items such as fishing boats, engines, nets, and refrigerated trucks, among others. Hire purchase can be successful especially for those fish SMEs lacking collateral as goods being financed under hire purchase serve as their own collateral. The lender remains the owner of the good until the final installment payment is made. The equipment can be

repossessed from the borrower in cases of default. However, asset liquidation depends on the existence of a strong secondary market (public auction) for used equipment.

Regulatory policies are crucial in pushing the system towards the frontier of fish SME financing. Regulatory framework that enable leasing and factoring have featured prominently in easing financing of fish SMEs. Though leasing and factoring are less developed in the two countries, they are vital options that can be promoted to avail needed equipment and other receivables to fishermen, distributors, processing and exporting firms. Leasing is an attractive financing tool for fish SMEs as it is based on cash flow of the financial asset rather than enterprise reputation or its collateral asset base. Factoring, the discounting of trade receivables, is also important to small suppliers of large credit-worthy buyers as it does not rely on borrower information but rather on the obligor (Klapper, 2006). However, both leasing and factoring require an effective legal framework governing these lending schemes and can assist in expanding fish SME financing frontier.

Stock markets though not fully developed in Uganda and non-existent in The Gambia can be instrumental in offering long-term financing to fish SMEs which most commercial banks do not offer such financial products due to their corresponding short-term sources of finance (deposit liabilities) to avoid maturity mismatch potentials. Stock markets can also deepen and enhance competition in the financial sector for fish enterprises to better access financial resources to fund their growth potentials. It is argued that corporate firms can easily seek funding from stock markets putting pressures on banks and MFIs to innovate financial products that meet the financing requirements of fish SMEs. Stock markets can therefore directly and indirectly increase fish SMEs' access to finance with some larger

processing and exporting firms directly accessing equity finance while small fish enterprises benefit from direct external financing from formal financial institutions.

Credit guarantee programs are also important to make finance available to fish SMEs. The successes in Colombia, Chile, Malaysia and Nigeria highlighted the scheme could be introduced in the two countries to increase fish SME financing. The program should be available to the banking sector across the country to retail funds to fish SMEs according to program guidelines. By providing guarantees, the program can assist in overcoming the inherent lack of collateral problems shown as a major obstacle in the study (see Figure 5.10) but the issue of appropriate pricing, funding and institutional structures are vital. This can better increase outreach and efficient management of the funds relative of government-owned credit scheme viewed as insufficient and unsustainable by many development economists.

However, it is worth noting that granting financial credits to fish SMEs without concern for recovery is not justifiable even on the grounds of reducing inequalities and alleviating poverty as it fosters moral hazard situation and a disincentive to successful fish enterprises. Poverty alleviation and inequalities can be better served by welfare programs and the delivery of social infrastructure than by lax credit to fish SMEs (see Robinson, 2001). Group lending technologies can be vital in addressing the credit constraint of young and small fish enterprises using joint social protection as security to reduce the use of conventional collateral. Lack of access to credit has considerably inhibited fish SMEs from reaping returns to scale and exploiting their full potential. Decentralising the financial system into low tiered formal financial associations (MFIs, SACCOs, NGO transformation) could be vital in channeling credits to niche markets of small and young fish enterprises.

While we do not dispute the importance of the market, LDC governments (as shown in Section 2.3.7) have vital roles to play in enhancing fish SME sustainable access to external finance. With LDC economies associated with weak institutions, information and contractual problems, leaving all to the market will only increase fish SMEs' continued marginalisation in accessing formal financial credit. The creation of right institutions, reforms in the financial and business environments and other market enabling and enhancing policies can go a long way to close the gap of fish enterprises of different sizes and ages. Credit guarantee schemes and BDS support services, R&D and other innovative programs can boost the market for growth and development. Some market enhancing and development roles are often beyond private sector capabilities making public sector intervention justifiable in line with Stiglitz (2002) argument. Studies have shown that without state intervention with right policy framework and incentives programs, SMEs and fish SMEs in particular will ever continue to be marginalised in the economy despite their importance in the socio-economic developments in developing countries.

The development of key institutions, technological infrastructure and the provision of broad-based financial services to fish SME sector are crucial measures for industrial upgrading. The demands of high quality products and services are an increasing requirement in global trade in the last two decades with manufactured and perishable products such as fish considerably requiring strict sanitary, safety and quality compliances. A joint effort with leading role of public sector agencies (see Porter, 1990; Rasiah, 2007; Lall, 1992, 2005) is required to set standards, establish and support meso-organisations to support enterprises' technological capability building. A strong technological infrastructure is essential in upgrading fish SMEs' competitive capabilities. Most East and Southeast

Asian economies owed their miraculous growth to significant government investment (World Bank, 1993) to support SMEs technological upgrading as small enterprises will find it difficult to pay full costs of R&D and technological upgrading. In view of resource constraints in line with Lall (1992, 2005) argument, a partial selective intervention in supporting key sectors of the economy like the fish SME industry is crucial in order to enhance their economic performance, growth and international competitiveness.

As shown in the case of Uganda, public sector agencies played a crucial role in addressing fish export crisis and it can also play a similar role in the fisheries sector of The Gambia. The public sector supportive role boosted fish production and exports, emergence of downstream products and enterprises established to deal in these products in Uganda leading to increase jobs, incomes of fisheries actors, tax revenue and deepening complex industry in the country. The private sector has limitations especially in LDCs where there are few large enterprises – apart from state corporations and few foreign firms, the rest being predominantly micro, small and medium-sized enterprises having difficulties in accessing external finance, attract high skilled personnel, acquire the right equipments and state-of-the-art technologies to produce in large quantities and export to high valued markets. In addressing issues of market failure, lack of public goods and the imperfect sharing of benefits, justifies the need for government intervention if the economies are to exploit their natural resources in a rational and sustainable manner. In this direction, the creation of technological parks and incubators should be explored in a collaborative manner with universities, research centres, municipalities, engineering firms, public sector agencies, banks and insurance companies to build domestic technology capabilities and enhance fish SMEs export performance and competitiveness.

Building network cohesion within the industry and trade partnerships is essential in international trade and government agencies can play a crucial role. The UFPEA and the support of EU Fish Importers Association helped Ugandan fish processors and exporters to access pre-financing support, investments in equipments, product developments and mediating with EU authorities in Brussels during the period of fish export crisis. Such a network body is absent in The Gambia making communication, dialogue and information sharing within the sector and the public sector authorities difficult.

Government credit programs targeting small and medium fish enterprises are often poorly managed impacting very little on the ground. As shown in Table 5.6, the poor non-performing loans (NPL) of 78.6% (recovery rate of just 21.4%) from artisanal fisheries project financing from 2004 – 2009 manifests the poor project fund management. Annually, the NPL to gross loans spread from 52.4% in 2005 to 98.5% in 2008 and 94.9% in 2009 showing costly and unsustainable lending mechanism. Efficient loan appraisal, monitoring and financial education are key to an effective credit risk management.

Although Uganda has clearly outperformed The Gambia in stimulating technological change and fish exports, efforts must be taken to support R&D and marketing to stimulate further upgrading in the industry. However, whereas only R&D and control over supply chains have not evolved in Uganda, The Gambia lacks a vibrant industrial fishing with associated linkages in global markets. Hence, the focus of Uganda should be targeted at reaching the technology frontier through the strengthening of R&D support services at the universities and R&D laboratories. The first step in The Gambia should be the active promotion of industrial fishing through a strong regulatory framework and with that the

meso-organisations to undertake training, export promotion, development of landing sites, refrigeration and maintenance of fishing boats and fish gears. Efforts must also be taken by both governments to promote productive linkages across key stakeholders – public and private bodies from investors, financial institutions, universities, research centres, business associations, industry networks, input suppliers, overseas importers and training institutions.

In the two-country study, a long bridge remains to be crossed before local fish enterprises, universities, banks, engineering firms, industry associations, municipalities and governments learn how to upgrade and develop domestic technologies, increase their access to resources including finance and equipments, build human resource skills and how fish SME clusters and technology parks can play an important role in this venture.

## **7.5 Limitations of the Study**

The following constitutes limitations of the study:

- i. Funding constraints - Financing limitations is not only a constraint to fish SMEs in the two countries but also an obstacle in this research. We could have reached more players in the industry to make the sample size more representative if adequate funding was available.
- ii. Low response - We could not carry out a number of tests which are important for the study due to low response of fish SMEs in the sample data such as export intensity, training expenditure, total assets, total sales and technology expenditure. We could not carryout financial access with ownership type (foreign and domestic) due to low incidence of foreign-owned fish SMEs in the survey data in both countries.



- iii. Lack hospitality- Some fish actors were not ready to share information regarding their businesses. Some thought the researchers are government agents trying to come up with additional tax burden and other compliance requirements.
- iv. Understanding the questions- Some did not understand number of questions especially those left with questionnaires requiring re-administration.
- v. Limited government support - Despite many government projects targeting small artisanal fisheries, many fish actors feel the support is limited and funds are poorly managed. On the contrary, the artisanal fishermen accused fisheries authorities of heavy-handedness, always eager to arrest them for any wrong doing.

## **7.6 Recommendation for Future Research**

This study targets fish industry players such as fishermen, traders, distributors, exporters and processors. Future researchers may explore further by expanding the players to include Government Fisheries Department; meso-organisations, input suppliers, industry associations, among others to have a broader picture of fish SMEs financial and institutional characteristics.

With more time and financial resources, capturing more foreign fish enterprises in the survey sample can broaden the financial, institutional and technological analyses that this study could not test empirically due to low incidence in the sample.

With stringent EU quality standards considered in many quarters as technical barriers to trade, future research into intra-African trade can be a way forward to meet the vast market demands within the continent. There is increasing evidence of low trade among African countries resulting to shortages of basic commodities including fishery products with resultant rising prices. However, fresh fish handling require technological capabilities irrespective of trade within and without Africa but smoked, dried and salted fish can meet fish nutrient needs of vast markets in landlocked countries and other remote areas in Africa. Joint efforts in building technological capabilities to increase quality fish exports is vital and adding value in the processing chain to support job creation, growth and development of the industry, by extension alleviate poverty and reduce inequalities through wealth creation.

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## Appendix A: Survey Questionnaire

		
<p><b>Enterprise Finance and Economic Development: A Study of Fishing Industry in Uganda and The Gambia</b></p>		
<p><b>Survey is data source for a Doctoral degree in Development Finance, University of Malaya, Malaysia</b></p>		
<p><b>Survey Questionnaire: SMEs define as employing more than five employees</b></p>		

*This study is being undertaken by PhD Candidate Seeku A K Jaabi. The aim of the study is to identify the incidence, success and failure rates, sources and mechanisms used by fishermen, distributors, processors, traders and exporters to access finance vis-a-vis with age, size, exports and R&D incidences.*

- Complete confidentiality is assured with this survey. The information that you provide us will be used in an aggregate form only. Individual firm data and firm identity will be completely anonymous.
- If any participating firm wish to have a complimentary copy of the report generated from the study, free to send in request to the author via email [jaabiseeku@yahoo.com](mailto:jaabiseeku@yahoo.com)

1. Name of firm/Individual..... 2. Year established.....

3. What is the ownership structure of your business?

- (a) State owned (100 %) ☐  
(b) 100 Percent foreign owned ☐  
(c) 100 Percent locally owned ☐  
(d) Joint venture ☐ → Local equity \_\_\_\_\_ %  
Foreign equity \_\_\_\_\_ %

(4) Type of Business

- (a) fishermen, (b) Distributor, (c) Processor, (d) Exporter, (e) Retailer  
(f) Others, please specify.....

5. Is your business registered with a Government Agency? (a) Yes (b) No

6. Does your firm have any links with companies abroad?

- (a) Yes ☐ No ☐

7. What was your firm's total employment (full time)? In any 3 years.

2008 \_\_\_\_\_ 2009 \_\_\_\_\_ 2010.....

8. Where did the business source its initial capital? (Tick Appropriate)

- (a) Personal Funds (b) Funds from friends and family  
(c) Loans from commercial banks (d) Trade Credit (e) Loans from Microfinance  
(f) Loans from NGOs (g) From SACCOs/Credit Union  
(h) Government projects (i) Others, specify.....

9. How does the business finance its operations (working capital)?

- (a) Personal Funds (b) Funds from friends and family  
(c) Loans from commercial banks (d) Trade Credit (e) Loans from Microfinance (f)  
Loans from NGOs (g) From SACCOs/Credit Union  
(h) Government projects (i) Others, specify.....

10. Has your business ever been disbursed a loan?

- (a). Yes (b). No

11. If yes, from which financial institution?

- (a) Commercial bank (b) Microfinance (c) credit Union (d) NGO (E) SACCO

12. What did you use the first loan for? (a) Buy equipments (b) Buy materials (c)  
Supplement business capital (d) Expand (e) Others specify.....

13. If no, what were the reasons given for the rejection? (tick appropriate)

- (a) Do not need a loan                      (b) Takes time to disburse the loan  
(c) High interest rates and other fee charges      (d) Lack of collateral  
(e) Lack of guarantors      (f) No credit history      (g) Repayments not flexible  
(h) Fear to default and its consequences      (i) Don't know where to get loan  
(j) Other (please specify) .....

14. How long did it take from applying the loan to disbursement of the loan?      (a)  
.....weeks, (b) .....Months      c) .....Years

15. Was the amount of loan adequate to meet your business needs?

- (a) Not Adequate      (b) Insignificant to business needs      (c) Just Adequate  
d) More than adequate

16. How much time were you given to repay back the loan? (a)....Weeks, (b)....Months, (c)  
.....Years      (d) Flexible      (e) Not flexible

17. Was the business profitable to generate enough income to repay the loan on time?

- (a) Profitable                      (c) Losses recorded but manage to pay  
(b) Breakeven                      (d) Not profitable, pay from other sources

18. Has any (a) bank or (b) microfinance ever denied you a business loan?

- (a).Yes      (b). No

19. If yes, what were the reasons?

- (a) Lack of Collateral      (b) Lack of Guarantors      (c) No credit history      (d)  
Other reasons .....

20. What share of your firm's export go to,

- (a) Developed Economies \_\_\_\_\_ (b) Neighbouring Economies \_\_\_\_\_  
c. Others\_\_\_\_\_

21. Breakdown of your firm's Sales and Output (*please specify currency*)?

<b>2007</b>	2008	2009	2010
a. Gross Input			
b. Gross Outputs			
b. Total sales			
c. Export sales			
d. Sales to domestic export companies			

22. Your firm's total assets?( *specify currency*)

2007 \_\_\_\_\_ 2008..... 2009 \_\_\_\_\_ 2010.....

23. How much did your firm spend on adapting technology (excluding quality control and testing) as % of total sales in:

(a) 2008? \_\_\_\_\_% (b) 2009 ? \_\_\_\_\_% c) 2010.....%

24. No. of persons engaged in adapting technology. (*Total full time equivalent*)

(a) 2007 \_\_\_\_\_ (b) 2008 \_\_\_\_\_  
c)2009.....d)2010.....

25. Has your firm participated in any government-sponsored technology program during the last 3 years?

(a) Yes ☐ (b) No ☐

26. How do you assess the present domestic environment for technology development?

	Rating				
a. Government incentives for innovation	1	2	3	4	5
b. Scientific/skilled manpower	1	2	3	4	5
c. Local universities for technical support	1	2	3	4	5
d. Standards organisation	1	2	3	4	5
e. Acquisition of modern equipment	1	2	3	4	5
f. Quality of ICT services	1	2	3	4	5
g. Availability of venture capital	1	2	3	4	5
h. Others, please specify	1	2	3	4	5

27. What is the breakdown of your firm's workforce (%) in 2010?

(a) Managers and professionals \_\_\_\_\_ (d) Supervisory and Clerical \_\_\_\_\_  
 (b) Engineers and technicians \_\_\_\_\_ (e) Skilled direct workers \_\_\_\_\_  
 (c) Unskilled workers \_\_\_\_\_ (f) General .....

28. How much did your firm spend on training (as a % of payroll)

(a) in 2007 \_\_\_\_\_% (b) in 2008 \_\_\_\_\_% c) in 2009 ..... d) in 2010.....%

*Questions 29-33: Weakest 1 and Strongest 5*

29. How important are the following policies to your firm?

a. Emphasis on teamwork	1	2	3	4	5
b. Informal contact between managers of different units	1	2	3	4	5
c. Multi-skilling and cross-expertise	1	2	3	4	5
d. Feedback from marketing for technology, R&D	1	2	3	4	5
e. Participation from lower level employees	1	2	3	4	5
f. Independent and group learning	1	2	3	4	5
i. Strong upward mobility of employees	1	2	3	4	5
j. Others (please specify)	1	2	3	4	5

30. How do you rate the quality of the following institutions in your host country?

a. Transport services	1	2	3	4	5
b. Power supply	1	2	3	4	5
c. Water supply	1	2	3	4	5
d. Telecommunication network	1	2	3	4	5
e. Public health facilities	1	2	3	4	5
f. Coordination with government institutions	1	2	3	4	5
g. Access to capital / credit	1	2	3	4	5
h. Primary Schools - literacy level of your firm	1	2	3	4	5
i. Technical Training institutions- BDS	1	2	3	4	5
j. Collaboration with the Universities	1	2	3	4	5
k. Scientists and engineers	1	2	3	4	5
l. Incentives for acquiring new technology	1	2	3	4	5
m. Standards organisation	1	2	3	4	5

31. How have the following government institutions benefited your firm's ability to compete globally?

a. Science and technology support organisations	1	2	3	4	5
b. Testing and quality evaluation facilities	1	2	3	4	5
c. Market research and intelligence	1	2	3	4	5
d. Overseas market promotion (e.g. trade fairs)	1	2	3	4	5
e. Export credit programs	1	2	3	4	5
f. Financial incentives	1	2	3	4	5
g. SME support and Inter-firm collaboration schemes	1	2	3	4	5
i. Others (please specify)	1	2	3	4	5

32. How do you describe the value of the relationship of your firm with the following:

a. R&D organizations (e.g. Universities and technology labs)	1	2	3	4	5
b. Financial services institutions (banks etc)	1	2	3	4	5
c. Distributors	1	2	3	4	5
d. Suppliers of material & components	1	2	3	4	5
e. Customers/ end users	1	2	3	4	5
f. Technical service providers	1	2	3	4	5
g. Business Development Service providers	1	2	3	4	5
h. Relationship between firms in industry associations	1	2	3	4	5
i. Strength of strategic alliances	1	2	3	4	5
j. Others (please specify)	1	2	3	4	5



33. Meeting sanitary and food quality standards (SPS and HACCP) are key in primary goods exports like fish. What is the level of your firm's capacity in meeting this requirement?
- a) 1                      (b) 2                      (c) 3                      (d) 4                      (e) 5

Date .....

**THANK YOU**

**BY YOUR RESPONSE YOU HAVE**

**CONTRIBUTED A LOT TO THIS RESEARCH**



**UNIVERSITY  
OF MALAYA**

Faculty of Economics and Administration  
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August 19, 2011

Director General/ Official Concerned  
The Gambia Bureau of Statistics  
Kanifing Institutional Area  
KMC

Dear Sir/Madam

**RE: REQUESTING SECONDARY DATA FOR Mr JAABI'S THESIS RESEARCH**

Mr Seeku A K Jaabi is a Deputy Director at the Microfinance Department of The Central Bank of The Gambia and currently a registered PhD candidate (No. EHA 100026) at the Faculty of Economics and Administration, University of Malaya, Malaysia. He is one of my supervisees in the postgraduate program. As a requirement of the program, Mr Jaabi is required to submit a Thesis entitled "Enterprise finance and Economic Development: A study of the fishing industry in Uganda and The Gambia". The objective of the research is to identify the financing sources, types of bank financing and constraints of key players in the fishing industry of the two countries.

In this regard, Mr Jaabi needs some secondary data on the following:

- i. Total imports and exports of The Gambia from 2000 - 2010
- ii. Total employment in the fishing sector and gross national employment from 1999 - 2010.

Kindly accord him your usual support to enable the smooth and efficient conduct of his research.

Thanking you in anticipation of your support and understanding.

Yours Sincerely

Professor Rajah Rasiah, Doctor of Philosophy (Cambridge)

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## Appendix C: Survey in Uganda – Introduction of a Field Officer



**UNIVERSITY  
OF MALAYA**

Faculty of Economics and Administration  
University of Malaya  
50603 Kuala Lumpur, Malaysia

August 12, 2011

### TO WHOM IT MAY CONCERN

Dear Sir/Madam

### RE: ADMINISTRATION OF SURVEY QUESTIONNAIRE

Mr Seeku A K Jaabi is a registered PhD candidate (No. EHA 100026) of the Faculty of Economics and Administration, University of Malaya. He is one of my supervisees undertaking a doctoral degree at University of Malaya. As part of the Program, it is a requirement for all candidates to submit Research Thesis on various topics approved by the University Authorities. Mr Jaabi is researching on a topic **"Enterprise finance and Economic Development: The study of the fishing industry in Uganda and The Gambia"**. The objective of the research is to identify the financing sources, types of bank financing and constraints of key actors in the fishing industry of the two countries.

In the above regard, I wish to introduce Mr Andrew Senyondo of Kyambogo University as an authorised officer to administer the questionnaires on Mr Jaabi's behalf. Kindly accord him your usual support to enable the smooth and efficient conduct of the survey.

I shall assure you complete confidentiality in this research. The information that you provide will be used in aggregates so the individual firm level data and identity will be completely anonymous.

Thanking you in anticipation of your support and understanding.

Yours Sincerely

A handwritten signature in blue ink, appearing to read 'Rajah Rasiah'.

**Professor Rajah Rasiah, D.Phil. (Cambridge)**

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